NOTES ON A COLLECTION OF BIRDS MADE BY MR. HARRY V. HENSON IN THE ISLAND OF YEZO, JAPAN.

BY

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(With Plate XLV.)

In response to my request for the loan of material for my proposed manual of Japanese ornithology, several years ago, Mr. Harry V. Henson, then of Hakodate, Yezo, most generously placed in my hands for examination a large and interesting collection made by him in the neighborhood of that town. Since then the U. S. National Museum has acquired this collection by purchase.

My original intention was to enumerate every specimen in the collection, but as it now has become part of our Museum, this plan was given up, especially since press of other work threatened to entirely prevent me from finishing this paper. Consequently, only the more interesting species have been treated of, and, as will be noticed, in a somewhat uneven manner. The various species were written up in a sequence dictated more by the accessibility of the material than with reference to a natural and systematic arrangement, and as several years have lapsed between the working up of species here closely associated, uniformity was unattainable except by rewriting the whole, an undertaking entirely beyond my powers at present. I have thought, however, that it would be better to publish the paper in the present form than to leave it unpublished.

Great credit is due to Mr. Henson for his successful exploits in a locality which has been better worked ornithologically than any other in Japan, and it is to be hoped that this success will encourage him and others to continue the good work. It demonstrates how much is still to be done even in localities which have been considered nearly exhausted We are as yet only laying the foundations of a solid knowledge of the Japanese avifauna. A large amount of material has yet to be collected and *discussed*, and the sooner it is done the better.

The numbers in parentheses following the specific names refer to Blakiston and Pryer's "Birds of Japan."

Colymbus holbœllii (REINH.). (15½)

A young female was shot near Hakodate, March 3, 1884 (U. S. Nat. Mus. No. 120709, H. V. Henson coll. No. 98). Being only the second record of this species in Yezo, it deserves special mention.

Podiceps nigricans (Scop.). (16+16½)

Little Grebe. Kaitsumuri.

1766.—*Colymbus auritus* γ Linn., S. N., 12th ed., I, p. 223.

1769.—*Colymbus nigricans* Scopoli, Ann. I Hist. Nat., p. 77.

1771.—*Colymbus fluviatilis* Tunstall, Ornith. Brit., p. 3 (*nomen nudum*).

1782.—?*Colymbus pyrenaicus* Lapeirouse, K. Vet. Akad. Nya Handl., III, p. 111.

1787.—*Podiceps minutus* Latham, Gen. Synops., Suppl., I, p. 294.—Seebohm, Ibis, 1882, p. 369.—Blakist. & Pryer, Tr. As. Soc. Jap., X, 1882, p. 93.—Blakist., Chrysanth., Nov., 1882, p. 524.—*Id.*, *ibid.*, Jan., 1883, p. 25.—*Id.*, Amend. List B. Jap., p. 32 (1884).

1787.—*Podiceps hebridalis* Latham, Gen. Synops., Suppl., I, p. 294.

1788.—*Colymbus minor* Gmelin, S. N., I, p. 591.—*Podiceps m.* Schlegel, Mus. P. Bas., Urinat., p. 43 (1867).—Seebohm, B. Jap. Emp., p. 367 (1890).

1788.—*Colymbus hebridicus* Gmelin, S. N., I, p. 594.

1790.—?*Colymbus philippensis* Bonnaterre, Enc. Méth., I, p. 58.—*Podiceps ph.* Swinhoe, Ibis, 1875, p. 456.—Blakist. & Pryer, Ibis, 1878, p. 211.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 181.

1804.—*Colymbus erythrocephalus* Hermann, Observ. Zool., I, p. 151.

1831.—*Podiceps pygmæus* Brehm, Handb. Vög. Deutschl., p. 966.

1842.—*Sylbeocyclus europæus* Macgillivray, Man. Brit. Ornith., II, p. 205.

1855.—*Podiceps pallidus* Brehm, Vogelf., p. 403.

1877.—?*Podiceps albescens* "Mandelli", Blanford, Stray Feath., V, p. 486.

Colymbus nigricans of Scopoli is very often quoted as a synonym of *C. auritus* Lin. (for instance, by Dresser and by Seebohm) but, I think, quite erroneously. Scopoli's diagnosis, "*Duplo minor* priore [*C. auritus*] Remiges secundæ *interno latere semialbæ*," undoubtedly belongs to the present species, and fits no other. The name is evidently derived from Brisson, whose *Colymbus fluviatilis nigricans* by the same authors is correctly referred to the Little Grebe. The confusion has originated with Latham, whose *Podiceps nigricans* (Synops., Suppl., I, p. 294, 1787) is entirely different from Brisson's and Scopoli's *nigricans*, being in fact the winter plumage of *C. auritus*. The name given by Scopoli (1769) is the oldest binominal bestowed upon this species, and should be given precedence over all the other names, even over that of Tunstall, *C. fluviatilis* (1771), which, moreover, is a *nomen nudum*, and, consequently, untenable.

The status of the present species and its subspecies is far from settled yet, and several names have therefore been left out of the above synonymy. Mr. Seebohm (cf. Chrysanth., 1882, Nov., p. 524) indicates several possible subspecies, a black-bellied (not "black-billed," as printed there) race from the Moluccas, another with white wing-speculum from Madagascar and India, and a third one from Asia Minor, remarkable for its short bill. Schlegel (Mus. P. B., Urinat., p. 43) admits that this species in certain localities exhibits light modifications in the colorations of the adults, but regards them as but little constant. His view, that they are "de nulle application générale, puisqu'ils ne sont sensibles que dans les adultes" is considerably at variance with ours and would lead to very curious consequences.

As to the Japanese birds, the general verdict seems to be that they are identical with European specimens, and the material at my command does not contradict it, so that although none of my Japanese specimens are in absolutely full plumage, I feel but little doubt that the above conclusion is correct. The slight differences in the dimensions, as seen in the tables given below, seem to be fully within the limits of individual variation, while in the extent of the black on cheeks and chin, and in that of the white on the wing, I can discover no difference.

I. *Japanese specimens.—Measurements.*

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing	Exposed culmen.	Tarsus.	Middle toe with claw.
U. S. Nat. 109472	.....	♂ ad.	Tokio, Hondo	Apr. 5, 1883	101	19	38	47
U. S. Nat. 91509	Jouy, 758	♂ ad.	do	Jan. 27, 1883	101	21	36	46
U. S. Nat. 91611	Jouy, 1035	♀ ad.	Kanagawa, Hondo	Mar. 29, 1883	96	21	36	48
	Stejn. 706	.....	"Japan"	.....	96	19	37	45
Christiania, Norway	Petersen, 60	♂ ad.	Nagasaki, Kinsiu	Oct., 1886	104	20	35	44
U. S. Nat. 120713	Henson, 1381	♀ ad.	Hakodate, Yezo	Nov. 1, 1884	95	18	34	43
U. S. Nat. 120712	Henson, 95	♀ jun.	do	Nov. 2, 1883	105	21	36	48
U. S. Nat. 120711	Henson, 96	♂ jun.	do	Oct. 29, 1883	100	21	38	48

Petersen's Nagasaki specimen differs from all the rest in having the inner web of the secondaries dusky except at base of the inner ones.

II. *European specimens.—Measurements.*

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing	Exposed culmen.	Tarsus.	Middle toe with claw.
19056	Lazar	♂ ad.	Hungary	.....	95	18	35	47
57313	Schlüter	♂ ad.	Pomerania	.....	96	19	.....	.....
74316	Pearce	♂	Sweet Waters, Turkey	Dec. 8, 1877	91	16.5	34	47
105962	Pluche	♀	Havre, France	Aug. 25, 1876	90	16.5	33	46
105961	....do	♀	do	Oct. 30, 1875	94	18	35	47
99587	.....		"Europe"	1871	103	20	.....	.....
23443	Lazar		Hungary	1860	93	18	.....	.....

Urinator pacificus (LAWR.).

A fine adult male of this interesting species opens the series of additions to the Japanese avifauna. It was shot near Hakodate on July 13, 1883, and is, of course, in full summer plumage, in which it can never be confounded with the nearly allied but quite distinct *U. arcticus*, its small size and nearly white occiput and upper hind neck being conspicuous enough.

The lateness of the occurrence of this specimen near Hakodate suggests the possibility of its breeding not far off, and the question then arises whether *U. pacificus* may not be the breeding bird and *U. arcticus*, which also occurs in Japan, the transmigrating species. A male specimen of the latter was also collected by Mr. Henson at Hakodate, May 12, 1883 (No. 120707).

The measurements of this specimen are as follows:

U. S. Nat. Mus. No. 120708; ♂ ad.; Hakodate, July 13, 1883; H. V. Henson Coll. No. 8; wing, 286mm; tail feathers, 49mm; exposed culmen, 51mm; tarsus, 79mm; middle toe with nail, 90mm.

Eurynorhynchus pygmæus (L.). (114)

Five specimens obtained near Hakodate during the fall migration of 1884, 1885, and 1886 show the pretty regular occurrence of this species on the coast of Yezo. The dates cover a considerable range, and are therefore noteworthy.

U. S. Nat. Mus. No.	Henson No.	Sex.	Date.
120589	44	♀	Oct. 8, 1885
120590	45	♂	Sept. 14, 1884
120591	576	♂	Aug. 3, 1885
120592	887	♂	Oct. 7, 1886
120593	972	♀	Oct. 15, 1886

Tringa canutus L. (104½)

U. S. Nat. Mus. No. 120607 (♂; Hakodate, May 6, 1886; Henson coll. No. 1010) establishes the first record of this species in Yezo.

Pavoncella pugnax (L.). (111)

A second specimen from Yezo is of sufficient interest to deserve special mention. It was collected September 1, 1884, near Hakodate (U. S. Nat. Mus. No. 120608; Henson coll. No. 1129).

Terekia cinerea (Güld.). (100½)

The first record of this species in Yezo is made by the four birds in Henson's collection, two males and two females, and the dates of their captures show that this species must be a rather regular visitor during both migrations. The four specimens (Nos. 120618–120621) were collected near Hakodate August 30, 1883; August 24, 1884; September 6, 1883; and May 16, 1884.

On the whole, this species seems to be more common in Japan than would appear from the published records.

Nettion formosa (Georgi). (40)

Two specimens, making the first record of this species from Yezo, collected respectively April 28, 1886 (U. S. Nat. Mus. No. 120673, ♂ ad., Henson, No. 18), and October 11, 1883 (No. 120674, ♀, Henson, No. 35), show that it occurs during both migrations.

Falco rusticolus Lin.

With the exception of the more or less uncertain references to a "*Falco candicans*" or "*Falco gyrfalco*," based upon Japanese drawings, Mr. Henson's specimen is the first record of a Gyrfalcon in Japan. It was shot near Hakodate March 15, 1884, and is nearly, if not fully,

adult, that is, the under side is rather heavily streaked with dusky but with the new feathers of the adult plumage protruding on the rump, consequently in a plumage corresponding to my No. 92721, from Bering Island, May 5, which had the ovaries in such a condition that she was probably going to breed that spring.

Henson's bird agrees in the minutest details with my Bering Island and Kamchatkan birds (Res. Orn. Expl. Kamtsch., etc., pp. 203, 204; Proc. U. S. Nat. Mus., X, 1887, pp. 139–141).

The specimen measures as follows: (U. S. Nat. Mus. No. 120720), ♀ adol.; Hakodate, March 15, 1884; H. V. Henson coll. No. 9): Wing, 400^{mm}; tail feathers, 237^{mm}; chord of culmen from cere, 26^{mm}; tarsus, 65^{mm}; middle toe, without claw, 55^{mm}.

Cuculus kelungensis Swinh. (165)

The three specimens of Cuckoos in the collection represent three different stages of this species. The series is very interesting, inasmuch as it shows that the broadly-barred species is quite as polymorphic as the common European Cuckoo. We have in fact here to deal with a curious kind of dichromatism, the character of which is still wrapped in mystery.

U. S. Nat. Mus. No. 120566, Henson No. 146, Hakodate, August 30, 1884, is a female in the rufous stage or phase, apparently adult. I say "stage or phase," because it is not yet certain whether this peculiar plumage represents a transient stage only or a permanent phase. The facts indicate, indeed, that it is a permanent phase in some individuals, and an intermediate stage in others, for Naumann (Naturg. Vög. Deutschl., V, Pl. 128, fig. 1) figures a female, in transition from the rufous plumage to the typical adult gray garb, while in the text (p. 203) he asserts that he once shot a female cuckoo in the genuine rufous plumage, which was molting into a still brighter rufous one. The observation by Naumann (*loc. cit.*, p. 203) on the European Cuckoo, that the central pairs of the tail-feathers are of more uniform length and less graduated in the rufous birds, seems also to apply to those of *C. kelungensis*.

No. 120568, Henson No. 1194 (Hakodate, September 19, 1884), is a young male of the year in the hepatic stage (back, remiges, and rectrices having numerous distinct rufous bars), molting directly into the typical gray plumage of the adult; while No. 120567, Henson No. 145 (Hakodate, September 29, 1883), is a young male in the purely gray phase, not yet molting.

Caprimulgus jotaka Temm. & Schl. (188)

Three specimens included in the table below. In the young bird the upper and lower tail-coverts, as well as a number of feathers on the hind neck, belong to the first plumage. In general coloration Mr. Henson's Yezo birds agree with others in the National Museum from Hondo, and with a specimen collected by Petersen in Kiusiu.

Caprimulgus indicus, with which *C. kelaartii* seems to be synonymous, is sometimes quoted as belonging to the present species, but a comparison of Indian specimens of the former with the table of dimensions below will show them to be a much smaller species.

Measurements.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Total length.
U. S. Nat., 120563.	Henson, 33	♂ ad.	Hakodate, Yezo	Sept. 27, 1885	222	140	10	15	22	....
U. S. Nat., 96118.	Pryer, Bl., 2615	(♂) ad	Yokohama, Hondo.		213	132	11	15	22	....
U. S. Nat., 88702.	Jouy, 602	♂ ad.	Fuji, Hondo	July 26, 1882	213	130	....	16	23	....
U. S. Nat., 91388.	Jouy, 730	♀ ad.	Tate Yama, Hondo.	Oct. 28, 1882	221	132	10	15	22	....
U. S. Nat., 120564.	Henson, 131	♀ ad.	Hakodate, Yezo	Sept. 10, 1884	205	132	10	16	23	....
Christiania, N.	Petersen, 67	(♀) ad	Nagasaki, Kiusiu.	Nov., 1886	214	128	10	.....	23	....
U. S. Nat., 120565.	Henson, 130	♂ jun.	Hakodate, Yezo	Aug. 22, 1885	212	135	9	15	22	....
U. S. Nat., 96117.	Blak., 2079	♂ jun.	do	Sept. 20, 1876	213	130	....	16	22	275
U. S. Nat., 96116.	Blak., 1481	♀ jun.	do	Sept., 1874	209	129	8	.....	.....	....
Average measurements of six adults					215	132	10	15.5	22.5	....

Ceryle lugubris (TEMM.). (176)

We retain the name given to this bird by Temminck for two reasons, first because we regard it as distinct from the Himalayan bird, and, in the second place, because *Alcedo guttata* of Vigors (1831) is preoccupied by *Alcedo guttata* of Boddaert (1783) (A. O. U. Code, p. 47, canon XXXIII). Considering the continental bird as distinct, we propose to call it *Ceryle guttulata*, in order not to deviate too much from the name by which it has been universally known.

The chief difference between the Japanese and the continental birds consists in the white coloration being much more extensive in the former than in the latter. The white bands crossing each feather of the upper parts are much broader in *C. lugubris*, being generally of the same width as the dark interspaces, while in the form which we have designated as *C. guttulata* the white cross bands are considerably narrower. This is not only very striking on the upper side of the folded wings, but on closer examination we find that the white cross-bands on the inner side of the primaries are more numerous in the Japanese form, there being at least one more, this one being about midway between the tips and the next band, while in the mainland species, the entire tip is unspotted for twice the ordinary distance between the white bars. The gray ground color of the back, moreover, is considerably lighter in *C. lugubris*.

C. lugubris is usually stated to be larger than the Himalayan birds, but the size of the two forms is practically identical, as will be seen from the appended tables. The alleged distinction in the shape of the

bill will hardly hold, for in the nine specimens before me I can detect no tangible difference.

Mr. Sharpe, in the introduction to his "Monograph of the Alcedinidæ" (p. xxv), says that "should a large Pied Kingfisher be discovered in China, intermediate forms will doubtless be found to connect the two races." Since then Swinhoe found the Spotted Kingfisher at Ningpo, and a beautiful specimen from the same locality is in the National Museum. So far from being intermediate in character, however, the Chinese specimen agrees most minutely with the darkest Himalayan birds. We have, therefore, no hesitation in referring all the continental birds to *C. guttulata*. In view of the very pronounced characters of the Ningpo bird we are not willing to accept a trinominal for the continental bird, which should not rank as *C. lugubris guttulata* until intergradation be satisfactorily proven.

The bill of the Ningpo specimen is absolutely perfect; it is very pointed, and the upper tomium near the point is distinctly and regularly serrate for a distance of about 15mm, showing that this character is not peculiar to the genus *Syma*.

Males and females differ considerably, the former having the under wing-coverts and the axillaries pure white, while in the latter the middle portion of the lining of the wing, as well as the axillaries, are of a bright vinaceous cinnamon.

In Henson's collection is one specimen, U. S. Nat. Mus. No. 120571, ♀ ad., Hakodate, February 1, 1885. H. V. Henson coll. No. 251.

Measurements of Ceryle lugubris.

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
114695	Ringer, 26	♂ ad	Kiusiu	Jan. 3, 1887	185	107	57*	13	28
109403	.....	(♂) ad.	Chichibu, Musashi	Dec. 18, 1884	186	111	64	13	28
91576	Jouy, 1053	♂ ad	Kawasaki River, Hondo	Apr. 11, 1883	187	111	61*	13	28
91577	Jouy, 1054	♀ ad	do	Apr. 12, 1883	191	112	61*	13	28
110484	Jouy, 1054	(♀) ad.	do	.....	183	112	60	13	28
120571	Henson, 251	♀ ad	Hakodate, Yezo	Feb. 1, 1885	190	112	61	14	30

* Bill much worn from digging the nest hole.

Measurements of Ceryle guttulata STEJN.

U. S. Nat. Mus. No.	Collector.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
101987	Brooks	♂ ad	Chungus, India	May 18, 1871	180	104	65	13	29
101988	Anderson	♀ ad	Kup Kate, India	May 31, 1875	183	109	63	13	29
101989	.....	(♀) ad.	Darjeeling, India	.....	185	110	66	13	30
85709	H. B. Meyer	♀ ad	Ningpo, China	Feb. 16, 1881	191	107	71	.....	.....

Jynx torquilla Lin. (174)

When writing my "review" of the Japanese Woodpeckers (Proc. U. S. Nat. Mus., IX, 1886, pp. 102–104) I had to regret my inability to examine Japanese specimens of the common Wryneck, as well as the insufficiency of my material to solve the question whether there are two climatic varieties of this bird separable by the deeper coloration of the alleged southern form.

The five Japanese birds which I have now before me (see table below) prove conclusively to my mind that the difference in coloration is not due either to sex, age, season, or locality, for Mr. Henson has both the pale and the deeply colored form from Yezo. Owston's specimen, from Hondo, is pale, and Petersen's, from Kiusiu, is dark. I am fully convinced that we have only to do with a dichromatism similar to that of the owls, though, as in some of the dichromatic owls, the one or the other phase may predominate in certain localities.

A comparison of the measurements below with those of the Western examples previously given (*tom. cit.*, p. 104) shows that Bonaparte was right in saying that the Japanese Wryneck is smaller than European specimens, though not *much* smaller as he alleges. In point of fact the difference in size between the examples from the two extremities of the Eurasian continent is so trifling that it would hardly do to base a separation of two forms upon that character, the more so as I have specimens of the same sex before me from both localities which are absolutely identical both in size and coloration. I would call attention, however, to the curious uniformity in the size of the Japanese specimens as shown in the table below, with which Capt. Blakiston's experience completely agrees, as in all the five Japanese Wrynecks measured by him the length of the wing was exactly 80^{mm}. An individual variation of only 1^{mm} in ten specimens is certainly extraordinarily small.

Measurements.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Ant. ext. toe without claw.	Remarks.
U. S. Nat., 120560.	Henson, 30..	♂ ad.	Hakodate, Yezo..	May 11, 1886	80	65	15	20	17	Pale.
U. S. Nat., 120561.	Henson, 24..	♀ ad.	....do.....	May 11, 1886	80	65	14	20	16	Do.
U. S. Nat., 120562.	Henson, 106.	♀ ad.	....do.....	May 9, 1884	79	63	13	20	....	Dark.
U. S. Nat., 110208.	Owston, 2895	♀ ad.	Hondo.....	.....	79	65	....	20	....	Pale.
U. S. Nat., 110483.	Petersen, 13.	♂ ad.	Urakami, Kiusiu.	Jan. 7, 1886	80	64	13	19	17	Dark.

Yungipicus kizuki seebohmi (HARGITT). (170½)

♀ ad.; Henson No. 186; Hakodate, September 10, 1884.

In my "review" of the Japanese Woodpeckers (Proc. U. S. Nat. Mus., IX, 1886, pp. 120–123) I stated that I had found that the Hondo breeding birds of this species agree completely with typical *Y. kizuki* from Nagasaki, and that only my birds from Yezo were properly referable to *Y. seebohmi*. This was quite opposed to the view of the original describer, who referred all his specimens from the Middle Island to the northern form. Since the publication of my paper Mr. Seebohm has taken the question up again (Ibis, 1887, p. 178), remarking as follows: "In a series of sixteen examples in Mr. Hargitt's collection and my own, those from the North Island of Japan are indistinguishable from those from the Middle Island, whilst those from the Southern Island are conspicuously darker. On the other hand, Dr. Stejneger (Proc. U. S. Nat. Mus., 1886, p. 121) regards a series, apparently of nine skins, from the Middle and Southern Islands as practically the same, while those from the North Island are treated as specifically distinct. It is, of course, possible that Dr. Stejneger is right, and all our skins from the Middle Island are those of winter migrants from Yesso."

Since then I have had the opportunity of examining additional specimens from all three islands, so that the series now before me comprises fourteen skins, all sexes and all but one properly dated. I am therefore in the position to throw more light upon the question.

Mr. Seebohm in the article alluded to characterizes three races of *Y. kizuki*. The form from Liukiu which he calls *Y. nigrescens* is distinguished by having "only four very small white spots on the outer webs of each of the three longest primaries" (*loc. cit.*); in *Y. kizuki* proper these "primaries have five small white spots on each;" while in *Y. seebohmi* "the white spots * * * are larger and are six in number."

The result of an examination of my material may be tabulated as follows:

Locality.	Museum and number.	Number of spots on three longest primaries.			Length of largest spot.
		Third primary.	Fourth primary.	Fifth primary.	
					mm.
North Island (Yezo)	U. S. Nat., 96004	5	6	6	6
	U. S. Nat., 96005	6	6	6	6
	U. S. Nat., 96003	5	6	6	6
	U. S. Nat., 120559	6	6	6	5
Middle Island (Hondo)	U. S. Nat., 91333	5	6	6	6
	U. S. Nat., 91427	5	6	6	6
	U. S. Nat., 91334	5	6	6	4
	U. S. Nat., 91426	5	5	6	5
	U. S. Nat., 109398	5	6	6	5
	U. S. Nat., 109399	5	6	6	4
	U. S. Nat., 88705	5	5	6	4
	U. S. Nat., 111659	5	5	5	4
South Island (Kiusiu)	U. S. Nat., 96002	5	5	5	4
	Petersen, 49	4	5	5	4

It will be seen that there is a regular gradation from north to south, and that the number of spots, or their size, gives no absolute reliable

character by which to separate these subspecies. And, as in the case of the wing spots, so also with the other characters distinguishing *Y. seebohmi* from *Y. kizuki* proper; they intergrade; they are only to be designated by trinominals! Many specimens can only be referred to their proper subspecies by the totality of their characters, and these can only be properly appreciated by placing series of both forms together, carefully comparing them. Specimens from Yezo and Kiusiu are easily distinguishable, and look quite different. Those from the eastern side of the Middle Island (the last four species of the Hondo series in the above table) agree very closely with the typical *Y. kizuki* from the south. But the remaining four of the same series come from the high mountain chain near the western shore of the Middle Island (Tate-Yama), and, as already indicated in my former paper, these are somewhat intermediate, though by a careful comparison with Yezo birds they are found to differ sufficiently from them in the direction of the southern form to be referable to the latter. What the birds of the northern portion of the Middle Island are like nobody knows, but it would not be surprising if those inhabiting the high mountain districts of this portion of the island were indistinguishable from the Yezo birds. In winter they would naturally come down into the lower districts, where only the true *Y. kizuki* breeds, and it would not be necessary to presume a crossing of the Tsugaru Strait in order to explain the presence of typical *Y. seebohmi* in Hondo. The instance of this bird shows plainly how necessary it is to have every portion of the islands thoroughly explored and the specimens from all parts of the Empire most carefully compared by competent investigators.

Mr. Seebohm also says that the bird in the "Central and North Island" is larger. From the tables of dimensions below, it will be seen that the South Island birds are not appreciably smaller than those from the Central Island, and that although one of the smallest specimens is from Tate-Yama the others from this locality are quite as large as the Yezo birds.

But whatever be the opinions as to the occurrence of *Y. sebohmi* in Hondo, this name should be abandoned by those ornithologists who require "hard and fast lines" between their "species."

Measurements of Yungipicus kizuki seebohmi.

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Ext. ant. toe without claw.
120559	Henson, 186...	♀ ad	Hakodate, Yezo	Sept. 10, 1884	85	48	13	15	10
96004	Blak., 3213...	(♂)ad	Sapporo, Yezo	Oct. 26, 1882	85	50	13	15	10
96005	Blak., 3214...	(♂)ad	...do	...do	83	....	13	15	10
96003	Blak., 2766...	(♀)ad	...do	Nov. 9, 1881	88	52	13	16	11

Measurements of Yungipicus kizuki.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Ext. ant. toe without claw.
U. S. Nat., 91333	Jouy, 698	♂ ad.	Tate-Yama, Hondo	Oct. 17, 1882	80	47	13	15	10
U. S. Nat., 91427	Jouy, 822½	♂ ad.	do	Nov. 30, 1882	85	....	13	15	10
U. S. Nat., 91334	Jouy, 780	♀ ad.	do	Nov. 25, 1882	87	53	14	15	10
U. S. Nat., 91426	Jouy, 801	♀ ad.	do	Nov. 20, 1882	90	52	14	15	10
U. S. Nat., 109398	Namiye	♂ ad.	Subashi, Hondo	Nov. 22, 1884	82	48	12	....	10
U. S. Nat., 109399	do	♀ ad.	do	do	82	48	....	....	.....
U. S. Nat., 88705	Jouy, 314	♂ ad.	Fuji-Yama, Hondo	June 28, 1882	82	45	14	16	10
U. S. Nat., 11165	Namiye, 15	♀ ad.	Miyakeshima, Idzu	May 3, 1887	83	46	14	15	10.5
U. S. Nat., 96002	Ringer	♀ ad.	Nagasaki, Kiusiu	.....	82	46	12	15	10
Christiania, Norw	Petersen, 49	♀ ad.	Tokitsu, Kiusiu	Apr. 19, 1886	80	46	13	14	10

Dryobates subcirris STEJN. (169)

♂ ad., U. S. Nat. Mus., No. 120557; Henson No. 212; Hakodate, Oct. 30, 1884. ♀ ad., No. 120558; Henson No. 213; Hakodate, Nov. 10, 1884.

These birds are typical *D. subcirris* both in size and color, and conform in every detail to the diagnosis which I gave six years ago (Proc. U. S. Nat. Mus., IX, 1886, p. 113). The under side, lower back and greater upper wing-coverts are strongly suffused with buff, and the rump is black.

The question as to the occurrence of true *D. leucotos* in Yezo is still an open one.

Dryobates japonicus (SEEB.). (167)

In Henson's collection there are two specimens undoubtedly referable to this species, though the under surface is rather dark buffy, but the white shoulder patch is comparatively large. One of them, a bird in male plumage (U. S. Nat. Mus. No. 120555, Henson No. 200), collected at Hakodate, November 10, 1884, is molting the first two primaries. The other (No. 120556, Henson No. 167), a female, from the same locality, September 11, 1884, is a comparatively young bird, as testified by two red feathers on the crown, and by the large size of the first (tenth) primary, which measures 35^{mm} in length.

Since writing my "review" of the Japanese Woodpeckers, I have received quite a number of additional specimens, but as they are all winter birds and none from farther south than Tokio, they throw but little light on the question of the occurrence and validity of the so-called *D. gouldii* GRAY from Japan.

It still seems as if the birds from the eastern and southern central portion of Hondo (Tokaido and southern Tosando) have less white* on

* In reply to a footnote by Mr. Hargitt (Cat. B. Br. Mus., XVIII, p. 219), in which he says that I have "stated that in the Main Island of Japan a species is found which has black scapulars and the underparts uniform," I may remark that in the paper quoted (Pr. U. S. Nat. Mus., 1886, Review of the Japanese Woodpeckers) I gave the characters of the supposed species as "Under surface *brownish;* scapulars *mostly* black." It is but just to an author to quote him correctly.

the scapulars than the Yezo and western Hondo specimens, and that their under surface is more deeply colored, but the Tate-Yama birds are intermediate to such an extent that I am now inclined to think that the percentage of distinguishable birds will not be found sufficiently large to warrant the separation of the typical *D. japonicus* and the "so-called *D. gouldii* GRAY." Hargitt has proven conclusively that the true *D. gouldii* MALH. is not a Japanese bird, a thing I hardly doubted myself, but he has failed to show what the bird from Japan in the British Museum is, which Gray called *D. gouldii!* Should it ever be found necessary to designate this bird by a separate name, it will have to be rebaptized, of course.

Picus canus jessoensis STEJN. (172)

Henson's two specimens (U. S. Nat. Mus., No. 120553; Henson, No. 214; [♂] ad., Hakodate, November 13, 1884; and No. 120554; Henson, No. 215; [♀] ad., *ibid.*, November 2, 1884) agree in every particular with the specimen upon which I originally based the present subspecies. They are strongly tinged with green on the head, and hind neck; their entire coloration is lighter and brighter than in north and central European specimens before me; and the black stripes on the occiputs of the males are large and better defined.

Mr. Edward Hargitt in a recent revision of the genus *Gecinus* (Ibis, 1888, pp. 1–42), drawn up in the thorough and excellent manner of this gentleman, takes some pain to show that the present subspecies can not be distinguished from true *P. canus* because (1) his two Japanese female specimens are indistinguishable from specimens from the Vosges, France, and (2) because another Yezo female is gray, like my *P. canus perpallidus*, from the opposite coast of the Asiatic mainland. But it seems to me that this way of reasoning is very much the same as if he were going to prove that *Egithalos trivirgatus* belongs to *E. caudatus* proper if it should be found not to differ from *E. europæus* (= *roseus*, *vagans*, etc.). In the first place, I would remark that the green color on the head is much more pronounced in the male Japanese birds, and that the difference between these and the European ones which I have seen is greater than in the females. In the second place, I regard the dark Norwegian birds as the types of the name *P. canus;* and as the Japanese ones to my mind are quite sufficiently different to form a subspecies, it makes but little difference so far as *their* nomenclature is concerned whether the French birds are identical with them or not, a proposition which I can neither deny nor affirm, as I have seen none of the latter. Nor have I any reason to doubt that the differences which I pointed out between the Japanese and the central European (German) examples hold good, which I have designated as *P. canus viridi-canus* (M. & W.). Mr. Hargitt has treated but lightly the question whether there exist any races or subspecies of the Gray-headed Green Woodpecker in Europe or not. He only says (*loc. cit.*, p. 20): "It seems to me

that if every slight variation of color necessitates the creation of subspecies, then there would be no limit to such in both *Gecinus viridis* and *G. canus*." If the subspecies really exist, we should recognize them, and it would facilitate our researches if we name them, but whether the number of them be great or small is only a secondary matter. Many ornithologists would willingly recognize two or even three subspecies by names, but they would be scared were it found that a species had split up into a dozen subspecies, or more. Their ruling principle is like that of Mr. Seebohm, who regards a genus as "highly objectionable" because only containing one or two species, though the result is quite different. Mr. Hargitt, moreover, seems to require that it shall always be possible to "draw a line" between the forms which he honors with a name (see *loc. cit.*, p. 14), but from the nomenclature which I adopted in describing the present subspecies under the heading of a trinominal he might have known that I did not claim that any "line" can be drawn. It is the essential difference between binominals and trinominals that a line can be drawn between the forms designated by binominals, but not between those for which it has been found necessary to apply three names.

Nor do I think that a very gray female collected at Sapporo in May proves anything either in regard to the status of *P. canus jessoensis* or to that of *P. canus perpallidus*. Perhaps it may belong to the latter; it would not be surprising; but perhaps it is only a faded and abraded specimen of the typical Yezo bird. However, even if none of these suppositions should hold, it is now well understood by American trinominalists, at least, that isolated cases of this kind do not affect the general status of the subspecies. In fact, in order to justify the use of a trinominal such cases are required.

Dryocopus martius Lin. (171)

A fine pair of this woodpecker is in Henson's collection, the first Japanese specimens I have seen. They are of a very intense black, and the bill is somewhat larger than in a European specimen before me.

U. S. Nat. Mus. No. 120551 ♂ ad., Henson, No. 216; Hakodate, December 2, 1884. U. S. Nat. Mus. No. 120552 ♀ ad., Henson, No. 251; *ibid.*, December, 15, 1884.

Otocoris alpestris (Lin.). (267)

U. S. Nat. Mus. No. 120550 ♂ ad., Henson, No. 1972; southeastern shore of Volcano Bay, Yezo, February 12, 1887.

The Common Horned Lark, or Shore Lark, has only been admitted into the Japanese avifauna with a query on the strength of a Japanese drawing so identified by the authors of Fauna Japonica (Aves, p. 138). Mr. Henson, therefore, has made a real addition to the fauna, since his specimen is the first, and as yet the only example, of this species from Japan, which has come into the hands of ornithologists. It belongs to the normal form, which is quite alike in both hemispheres.

A somewhat full description of this specimen may prove useful and interesting to Japanese ornithologists.

Forehead, supercilary stripe, a crescent across the middle of the ear-coverts, upper half of sides of neck, chin, and throat, delicate straw-yellow, the forehead, chin, and throat brighter, nearly Naples-yellow; upper portion of forehead spotted with black; fore part of crown and a line above the superciliary stripe black, forming, with the latter, a somewhat pointed horizontal feather tuft above the ears; nasal feathers, lores, anterior portion of auriculars, and malar region, black; jugulum similarly colored, forming a large black crescent on the foreneck, not connected with the black cheek patch; auriculars apically drab-gray, forming a well-marked crescent which posteriorly circumscribes the auricular region; posterior half of crown and occiput vinaceous drab, each feather obscurely striped with cinnamon-rufous; hindneck, as well as lower portion of sides of neck, pinkish vinaceous cinnamon, obscurely striped with dull cinnamon-rufous; back grayish wood-brown, more or less distinctly streaked with dusky brown; rump and some of upper tail-coverts strongly suffused with vinaceous cinnamon; under side of body from breast backwards white, flanks suffused with vinaceous cinnamon and streaked with dusky; wings above like the back, outer lesser and median coverts more or less vinaceous cinnamon medially striped with cinnamon-rufous and margined at the tip with whitish; greater wing-coverts, as well as most of the quills, similarly margined in the apical half; under wing-coverts white, the outer ones with gray or dusky centers; middle pair of tail-feathers and longest upper coverts like the back, outer pair blackish brown with the outer webb whitish in the apical half, next pair with a corresponding very narrow white edge, otherwise like the rest of the rectrices, uniform brownish black. Bill pale, horny plumbeous; feet blackish brown.

First (ninth) primary scarcely longer than third, but somewhat shorter than second, these three forming the tip of the wing; second, third, and fourth distinctly sinuated in outer web.

Wing, 110^{mm}; tail-feathers, 69^{mm}; exposed culmen, 10.5^{mm}; tarsus, 22^{mm}; middle toe, with claw, 17^{mm}.

Alauda japonica Temm. and Schl. (266)

U. S. Nat. Mus. No. 120548 ♂ ad., Henson No. 149; Hakodate, May 30, 1885; U. S. Nat. Mus. No. 120549 ♀ ad., Henson No. 150; Hakodate, April 3, 1884.

Mr. Henson's birds agree perfectly with numerous others from Yezo and Hondo. This is apparently the only lark breeding in Japan proper (excluding the Kurils), and from the description and the figure in Fauna Japonica (Aves, p. 87, pl. xlvii) it is to this smaller form that Temminck and Schlegel gave the name *Alauda japonica*, and not to the large one, as Mr. Seebohm suggests (Ibis, 1884, p. 41); for not only do their measurements agree (wing 3 inches 9 lines, Pied du Roi= 101^{mm}, slightly less than the average male as given in the table below),

but in the plate the peculiar shortness of the tip of the wing is rendered very exactly.

In 1885 (Orn. Expl. Kamtsch., p. 236) I gave the measurements, including averages, of six Japanese specimens. They are included in the following table, and it is very interesting and gratifying to observe how close the averages of the two series run, as the results indicate that their figures are worthy of confidence.

Blakiston (Chrysanth., 1883, p. 35) informs us that the larks do not winter in Yezo. The present species passes the cold season in Hondo.

Measurements.

U. S. Nat. Mus. No.	Collector and number.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Total length.
120548	Henson, 149	♂ ad.	Hakodate, Yezo	May 30, 1885	102	66	12	25	20	....
120549	Henson, 150	♀ ad.	....do	Apr. 3, 1884	*99	*65	11	25	19	....
96303	Blak., 1168	♂ ad.	....do	Apr. 1, 1873	101	64	12	25	20	178
96305	Blak., 2097	♂ ad.	....do	Oct. 1, 1876	100	66	11.5	25	22	171
91551	Blak., 2938	♂ ad.	Sapporo, Yezo	June 23, 1882	104	66	12	.....	.....	....
96312	Blak., 2939	♂ ad.	....do	....do	*101	67	12.5	25	20	....
91550	Blak., 2984	♂ ad.	Yubutz, Yezo	Sept. 15, 1882	99	64	12	.....	.....	....
96316	Blak., 2989	♂ ad.	....do	....do	(†)	(†)	11	25	21	....
96314	Blak., 2982	♂ ad.	Tomakomai, Yezo	Sept. 16, 1882	102	69	11	24	20	....
96309	Blak., 2844	♂ ad.	Sarubuto, Yezo	May 24, 1884	101	64	12	25	21	....
96306	Pryer, Pl., 2184	♂ ad.	Tokio, Hondo	Mar. 27, 1877	101	64	11	24	20	....
109389	Namiye	♂ ad.	....do	Mar. 15, 1883	104	64	12	.....	.....	....
91464	Jouy, 911	♂ ad.	Yokohama, Hondo	Jan. 3, 1883	106	63	11	.....	.....	....
96321	Jouy	♂ ad.	....do	Jan. ——	100	65	11.5	24	21	....
91465	Jouy, 912	♀ ad.	....do	Jan. 3, 1883	92	58	13	.....	.....	....
91466	Jouy, 913	♀ ad.	....do	....do	98	65	12	.....	.....	....
91467	Jouy, 914	♀ ad.	....do	....do	93	58	11	.....	.....	....
96322	Jouy	♀ ad.	....do	Jan. ——	94	62	11.5	23	20	....
109398	Namiye	♀ ad.	Tokio, Hondo	Mar. 8, 1884	99	63	11	.....	.....	....
96310	Blak., 2845	♀ ad.	Sarubuto, Yezo	May 24, 1882	94	61	12	24	19	....
96318	Blak., 2990	♀ ad.	Yubutz, Yezo	Sept. 13, 1882	97	60	11	24	20	....
96320	Blak., 2992	♀ ad.	....do	Sept. 14, 1882	(†)	(†)	12	25	22	....
96307	Blak., 2369	♀ ad.	Sapporo, Yezo	May 28, 1877	95	59	11.5	24	22	....
96311	Blak., 2903	♀ ad.	....do	June 9, 1882	94	61	12	25	19	....
	Average measurements of 13 males				102	65	11.6	24.7	20.4	....
	Average measurements of 11 females‡				95	61	11.6	24.3	20.1	....

* Much worn.
† Molting.
‡ The U. S. National Museum possesses three more adult specimens of *Alauda japonica* (Nos. 96302, 96308, 96319) which, in view of the above series, it is unnecessary to measure, as they are not sexed by the collectors. Three young ones also belong to the Museum, viz: No. 88657, collected by Mr. Jouy, at Fuji, July 22, 1882; No. 96304, Hakodate, June, and No. 96317, Yubutz, September, both collected by Capt. Blakiston.

Alauda blakistoni STEJN. (266½)

U. S. Nat. Mus. Nos. 120546–7, two ad. ♂ ♂, Henson, Nos. 148, 722; Hakodate, November 5, 1885; April 2, 1886.

As contended by Capt. Blakiston long ago, there is no difficulty in keeping separate the two forms of larks which inhabit Japan, for the measurements alone are sufficient to distinguish them, as shown by the appended tables of dimensions.

A. blakistoni is very nearly allied to *A. intermedia* SWINH. of the opposite mainland and to *A. arvensis* LIN. of Europe, being, in fact,

only a subspecies of the latter. These belong to a northern type of migratory habits, characterized by having the tip of the wing much elongated, that is, the first four primaries which form the tip of the wing are lengthened so as to reach farther beyond the others than in the birds of the southern type. This latter is represented in Japan by *A. japonica*, which in turn is only subspecifically distinct from *A. calivox* SWINH. from China. These forms I believe in the main to be resident birds. The difference in the construction of the wing above alluded to is well pronounced in the Japanese species and may be expressed as follows:

(1) *Alauda blakistoni*, distance of fifth primary from tip of wing greater than middle toe, without claw;

(2) *Alauda japonica*, distance of fifth primary from tip of wing less than middle toe, without claw.

These characters, of course, are only well pronounced in specimens the quills of which are fully grown and not much abraded.

Mr. Seebohm admits (Ibis, 1884, p. 41) the existence in Japan of two races distinguished by their difference in size. The larger one, with "the wing varying in length from 4.9 to 3.9 inches," he says "might be called var. *japonica* by ornithologists anxious to split hairs." This name I consider referable to the smaller form.

Alauda blakistoni was based by me on Kamtchatkan specimens before I had seen any skins from Japan. A comparison of the figures of the table below with those given by me in my Orn. Explor. Kamtsch., p. 235, shows a remarkable uniformity; the averages of wing and tail being identical to the millimeter.

Alauda blakistoni has as yet been reported in Japan only from Yezo and the Kurils. It breeds apparently on the latter, and passes through Yezo only during the migrations, which do not seem to extend to Hondo. As we have no Yezo winter specimens, this form probably winters somewhere on the mainland.

Measurements.

U. S. Nat. Mus. No.	Collector and number.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Total length.
120546	Henson, 148	♂ ad.	Hakodate, Yezo	Nov. 5, 1885	124	76	13	26	24	....
120547	Henson, 722	♂ ad.	....do	Apr. 2, 1886	*112	*68	13	27	23	....
96313	Blak., 2981	♂ ad.	Tomakomai, Yezo	Sept. ——	†109	69	12.5	26	22	....
96315	Blak., 2985	♂ ad.	....do	Sept. ——	(†)	(†)	12.5	26	22	....
96298	Blak., 1569	♂ ad.	Nemoro, Yezo	Oct. 6, 1874	115	71	12	26	22	....
96300	Blak., 2770	♂ ad.	Iturup, Kurils	Sept. ——	†116	71	12.5	26	23	196
96301	Blak., 2771	♂ ad.	....do	Sept. ——	†121	74	12	27	24	205
96299	Snow, Blak., 2735.	♂ ad.	"Kuril Islands"	....	117	74	12	26	22	....
Average measurements of 7 males					116	72	12.6	26	22.9	....

* Much worn. † Partly molting.

Motacilla lugens KITTL. (229½)

It is just as well to state at the outset that this is not the *Motacilla lugens* of Fauna Japonica, which is the next species; or, perhaps, it may be better to give the full synonymy of both species, in order not to be misunderstood.

1784.—*Motacilla alba* PENNANT, in Cook's Voy. Pacif., III, p. 355 (*nec* LIN.).
1826.—*Motacilla albeola* var. PALLAS, Zoogr. Ross. As., I, p. 507.
1833.—*Motacilla lugens* KITTLITZ, Kupfertaf., p. 16, pl. xxi, fig. 1 (*nec* TEMM. & SCHL.)—CASSIN, Perry's Exp. Jap., II, p. 221 (1856).—*Id.*, Proc. Acad. Philada., 1858, p. 193.—SEEBOHM, Ibis, 1878, p. 347 (in part only).—*Id.*, B. Jap. Emp., p. 111 (1890).—STEJNEGER, Orn. Expl. Kamtsch., p. 287 (1885).—SHARPE, Cat. B. Brit. Mus., X, p. 474, pl. iv, figs. 1–4 (1885).
1833.—*Motacilla lugubris* GLOGER, Abänd. Vög., p. 148 (*nec* TEMM., 1820).—TEMM., Man. d'Orn., 2d ed., III, p. 175 (*part*) (1835).—CABANIS, Mus. Hein., I, p. 12 (1850).
1839.—*Motacilla leucoptera* VIGORS, Voy. Blossom, p. 18 (*nec* SELYS, 1856).—ZANDER, Naumannia, 1851, iv, p. 14.
1844.—"*Motacilla albeola* var. *camtschatcæ* PALL.," SCHLEGEL, Rev. Crit., p. 68.
1850.—"*Motacilla albeola* var. *camtschatica* PALL.," Bonaparte, Consp. Av., I, p. 250.
1851.—*Motacilla alba lugens* ZANDER, Naumannia, 1851, iv, p. 13.
1863.—*Motacilla ocularis* SWINHOE, P. Z. S., 1863, p. 275 (*part*).
1863.—*Motacilla japonica* SWINHOE, Ibis, 1869, p. 306,—*Id.*, *ibid.*, 1874, p. 156 (*part*).—WHITELY, Ibis, 1867, p. 198.—BLAKIST. & PRYER, Ibis, 1878, p. 236 (*part*).—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 220 (*part*).
1878.—*Motacilla amurensis* SEEBOHM, Ibis, 1878, p. 345, pl. ix.—*Id.*, *ibid.*, 1883, p. 91.—*Id.*, *ibid.*, 1884, p. 39.—BLAKIST. & PRYER, Tr. As. Soc. Jap., X. 1882, p. 155.—BLAKISTON, Chrysanth., 1882, p. 522.—*Id.*, *ibid.*, 1883, p. 174.—*Id.*, Amend. List B. Jap., p. 53 (1884).
1882.—*Motacilla kamtschatica* STEJNEGER, Naturen, 1882, p. 182.
1882.—*Motacilla camtschatica* TACZANOWSKI, Bull. Soc. Zool. France, 1882, p. 388.
1883.—*Motacilla* ———— ? BLAKISTON, Chrysanth., 1883, p. 31.
1883.—*Motacilla blakistoni* SEEBOHM, Ibis, 1883, p. 91.—*Id.*, *ibid.*, 1884, p. 38.—RIDGWAY, Pr. U. S. Nat. Mus., VI, 1883, p. 147.
——.—*Motacilla mutabilis* BLAKISTON, MSS. and labels.

It is only during the last few years, and due to the late Capt. Blakiston's indefatigable efforts, that the two Japanese species of Wagtails have become thoroughly understood, for not only has the nomenclature been in a most deplorable state of confusion, but the fact that both species occur in the same locality, at certain seasons at least, coupled with the great variation of the plumages, according to age and season, presented some of the most perplexing knots in Japanese ornithology; in order to untie them it was necessary for Capt. Blakiston to bring together about seventy specimens collected at all seasons. In an interesting article in the "Chrysanthemum" (1883, p. 31), and in the "Amended List of the Birds of Japan," pp. 52–55 (1884), he ably disentangled the skein, and recently Mr. R. Bowdler Sharpe (Cat. B. Brit. Mus., X, 1885), has added materially to the clearness of the case by giving the black-eared species a new name, and by systematically describing and illustrating the different plumages of *M. lugens*.

It appears, however, that the differences have not been contrasted in such a way as to enable the field ornithologists to distinguish the two

species in all plumages, for Mr. Henson, who has correctly named nearly all the other species of his large collection, has sent me the entire lot of White Wagtails without an attempt to identify them, simply labeling them "*Motacilla*—?" It may, therefore, not be out of place to give a brief tabular synopsis of the chief differences by which the various plumages are most easily distinguished.

Plumage.	*Motacilla lugens.*	*Motacilla grandis.*
Young in first plumage (June, July, August; plumage easily recognized by the loose and open texture of the contour feathers).	Upper surface "smoke gray" (Ridgw., Nomencl. Col., pl. ii, n. 12); ear-coverts and entire fore-neck white faintly washed with "cream color," each feather narrowly edged at tip with dusky, more broadly on lower jugulum, forming an indistinct dusky collar across the latter; greater upper wing-coverts dark brownish gray broadly margined with white; middle coverts dusky at base, grayish white at tip with a dusky shaft streak.	Upper surface, ear-coverts, and entire fore-neck, uniform dark "drab-gray" (Ridgw., Nomencl. Col., pl. ii, n. 13); greater upper wing-coverts white to the base; middle coverts likewise entirely white.
Young after the first molt (which usually is finished before the middle of October; texture of contour feathers firm; remiges and rectrices not molting).	Upper surface smoke-gray more or less strongly washed with straw-yellow, the males usually more or less black on hind crown; supraloral region, supercilia, ear-coverts, malar region, sides of neck, chin, and throat white tinged with straw-yellow; upper jugulum similar, but feathers subapically margined with blackish, lower jugulum with a black, semilunar collar, each feather apically margined with whitish; through the eyes a dusky line; wings as above.	Upper surface, sides of head, including ear-coverts, sides of neck throat, and jugulum, dead black; feathers on upper surface more or less broadly margined at tip with grayish; forehead, superciliary streak, and chin pure white; wings as above.
Adult bird (*i. e.*, birds ready for propagation) *after the first spring* (no matter what the coloration of the wing), *summer, and winter.*	Cheeks (malar region, suborbital region, auriculars) and sides of neck white. Tarsus shorter, 23^{mm} to 25^{mm}.	Cheeks and sides of neck black. Tarsus longer, 25^{mm} to 27^{mm}.

Notwithstanding the great superficial similarity in the two species, to the close observer they are very different indeed. Their general size is about the same, but the proportions differ materially, *M. grandis* having a longer and at the base comparatvely narrower bill and considerably longer tarsus than *M. lugens*. The changes of plumages, moreover, are radically dissimilar, in fact so much so, that this case ought to be a warning to ornithologists not to be too hasty in concluding that, while he knows the change of plumages is one form to be of a certain nature, that of the nearest allied species is essentially alike. Capt. Blakiston, I think, was the first ornithologist to announce (Chrysanth., Jan. 1883, p. 31), the interesting observation that in *M. grandis* the young birds during the first autumn pass at once into the black plumage, while the young *M. lugens* are gray during the first winter, and that subsequently the former remains black during all seasons, while the latter is black in summer only and gray in winter.

It is quite evident from Capt. Blakiston's manuscript notes, as well as from the labels attached to the specimens in his collection, that he considered the differences in the wing pattern found in the various in-

dividuals of *M. lugens* to be due to successive molts of the quills. Mr. R. Bowdler Sharpe (*loc. cit.*), on the other hand, seems to maintain that the changes between the different patterns of wings take place during the time between the molts. And he too bases his conclusions upon a study of the series in Blakiston's collection. It would therefore seem as if this series were not quite sufficient to settle the question, and so is in fact the case, for, although very complete in autumnal specimens, spring birds are comparatively not so well represented. The large series of the present species, which I myself collected in Kamchatka, on the other hand, contains mostly specimens killed during the month of May (cf. "List of specimens collected," Res. Ornith. Explor. Kamtschatka, p. 291), supplementing Capt. Blakiston's collection to a great degree. I am therefore in the position to throw considerable light on the subject, and hope to be able to settle a part of this vexed question.

Before attempting this, however, a few general remarks in regard to points which must not be lost sight of during the following discussion may not be out of place. It is then to be noted that while the color of the small plumage is changed twice a year, the quills and tail-feathers are only shed once, viz, in autumn. The last (proximal) three secondaries (or "tertiaries") form an exception to this rule, inasmuch as they are molted twice a year. In speaking of the changes which take place at the annual (autumnal) molt of the quills, we do not include any reference to the last three, in order not to create any confusion. I will also mention that I shall designate the three figures of the wing of *M. lugens*, presented by Mr. Sharpe in the tenth volume of the "Catalogue of the Birds in the British Museum," on pp. 475, 476, and 477, as fig. 475, fig. 476, and fig. 477, respectively.

Of *M. lugens* ten specimens in the first plumage are before me, seven belonging to Mr. Henson's collection (Henson's Nos. 28, 29, 31, 40, 41, 42, 65) and three to Capt. Blakiston's (Blak., Nos. 1389, 1390, 1561; U. S. Nat. Mus., Nos. 96206, 96207, 96208), the former collected during August, the latter during September and July; some are marked as male and some as female, but all are essentially alike in regard to the distribution of whitish and brownish gray, agreeing minutely with Sharpe's fig. 475. As this figure does not exhibit the inner webs of the quills, I append a sketch of the secondary next to the longest "tertiary" (pl. XLV, fig. 1). Birds which have finished their molt have exactly the same quill pattern, as testified by twelve specimens collected in September and October (Henson's No. 328; U. S. Nat. Mus., Nos. 96210, 96212, 96220, 96227, 96228, 96229, Blak. coll.; 92689, Stejn. coll., all September birds, and Henson's No. 335; U. S. Nat. Mus., Nos. 96223, 96224, 107107, Blak. coll., October). I have, furthermore, four November specimens (Henson's No. 735, Hakodate; U. S. Nat. Mus., No. 96214, Yokohama, Owston coll.; 96213, Nagasaki, Ringer coll.; Petersen's No. 74, Nagasaki) which differ in no particular from the figures quoted above. From December and January I have no examples, but from the fact that a

male killed in February (U. S. Nat. Mus. No. 96218, Nagasaki, Ringer coll.) and two males in March (91531, 91559, Tokio, Jouy coll.*) offer no differences from the early winter birds it is safe to conclude that specimens from the intervening months are equally alike. Early April specimens are wanting; however, a bird obtained by Mr. Grebnitzki on Bering Island, April 30 (U. S. Nat. Mus. No. 106609)† and one by Blakiston in Yezo during May (U. S. Nat. Mus., No. 96192), as well as ten others from Kamtchatka and Bering Island, collected during the latter month (Nos. 92682, 88985, 88986, 92683, 92686, 92681, 96606, 96607, and Stejneger Nos. 1035, 2031), show no trace of change in the quill pattern; at least not in the direction supposed by Mr. Sharpe, for the northern birds appear to have the dark color on the outer web of the last secondary (the one figured as above) more extended towards the base. This series is concluded by two birds in full breeding plumage, one (♂) shot by myself in Petropaulski, Kamtchatka, June 27, 1882 (U. S. Nat. Mus., No. 89146), the other (♀) collected by Blakiston at Cape Blanco, Yezo, June 23, 1873 (No. 96194), the latter in a very abraded plumage, both of which in every essential particular have the quills colored in the same manner as the birds in the first plumage killed the year previous in July, August, and September.

We have thus examined a series of forty-three specimens, illustrating the pattern of the quills, from the birds leaving the nest until they have become a year old and are rearing their own young. This material proves most conclusively that the quills undergo no change whatsoever in regard to the relative distribution of white and dusky (except, of course, the gradual wearing away of the whitish edges during the second summer). It is also to be noted, that in this enormous series the individual variation is but very slight.‡

The yearly molt of the quills does not take place until about two months later than the latest specimen enumerated above, and from these months I have no specimen to show. I should therefore have expressed myself much more guardedly in regard to a possible change in the coloration of the quills during the last period before the molt, had it not been that our collection contains a most interesting specimen which,

*These two specimens are molting their "tertiaries," and the new black feathers on the back make their appearance; throat already black in No. 91559. I make this statement well aware of the fact that Dr. H. Gätke (Journ. of Orn., 1854, p. 323) flatly denies a prenuptial molt in the British White Wagtail. He says: "Von beiden Arten [*Motacilla lugubris* (*yarrellii*) and *Anthus littoralis*] habe ich Hunderte von Exemplaren in allen Stufen des Ueberganges vom Winter- zum Sommerkleide in Händen gehabt, *nie* aber *neu hervorkeimende*, halb- oder weiter ausgewachsene Federn finden können." However this may be in the European bird, the fact remains that in the specimens referred to, most of the black feathers on the back are still in their sheaths.

†From this time on all the specimens are in full summer plumage; throat black; males with back black, females gray.

‡The greater amount of dusky on the proximal secondaries in the Kamchatkan spring specimens is possibly a peculiarity of the breeding birds of that country.

in connection with the above series, most satisfactorily completes the proof and makes it incontrovertible.

This specimen, a female, was collected by Capt. Blakiston at Yubutz, Yezo, September 15, 1882 (U. S. Nat. Mus., No. 96211; Blak., No. 2958), and is in full molt all over. The black feathers on top of the head are giving way to gray ones tinged with yellow; the anterior portion of the back has already assumed the latter color; new white feathers delicately suffused with straw-yellow appear on the throat; several new black marginal (smaller) upper wing-coverts have taken the place of the gray ones; the tail feathers also are molting, and in the left wing the longest "tertiary" has fallen out. Most interesting is the molt of the other quills, inasmuch as all the primaries and all but two of the secondaries are new and still partly in the sheaths; the two secondaries left from the old plumage are the two ones next to the "tertiaries," quite brown and faded and with the whitish margins nearly entirely worn off, but the extent of terminal dusky and basal white is exactly as in the July bird just out of the nest, which we have already figured (pl. XLV, fig. 1). In a day or two these feathers would have fallen out, and we have thus proof that the first quill pattern remains absolutely unchanged until the molt in the second autumn. This demonstrated, we will now take a look at the new quills in this bird. Only the six inner primaries are nearly fully grown, and of the secondaries only the three next to the primaries are so far grown that this pattern can be made out. In a general way they do not differ greatly from the wing pattern of the first plumage, except that the dusky portion is blacker and less extensive, while the light bases and margins have increased in extent and whiteness; the black in the outer web of the primaries descends along the shafts nearly to the base. So far as I can make out, this pattern is the one which Mr. Sharpe represents in fig. 476. In order to give an illustration of the secondary next to the longest "tertiary" for comparison with my previous figure of the corresponding quill in the young bird, I select another specimen, with which the molting bird alluded to agrees in every respect as far as the quills already grown out are concerned. This specimen is U. S. Mus. No. 96205 (♀, Tomakoma, Yezo, September 17, 1882, Blak. coll., No. 2959), shot only two days later than the above female, but probably of an earlier brood, inasmuch as the entire molt is finished. Pl. XLV, fig. 2, gives a fair idea of the distribution of black and white on the inner secondaries in this stage of plumage, while fig. 3 illustrates the same on the fifth primary. Quite a series of specimens agree closely with this type, which we regard as representative of the birds in the second winter and third summer, viz: U. S. Nat. Mus., Nos. 96226 (Yezo, September), 107016 (Nagasaki, December 25), and 96195 (Yezo, April); Henson, No. 138 (Yezo, April 19); U. S. Nat Mus., Nos. 96196 (Yezo, May 16), 107014 (Yezo, June 22); 96212 (Yokohama), and 107108 (Nagasaki), the latter two, however, without date and sex on the collector's labels. All these

are designated as females by the collectors, except the last two, of which the Yokohama specimen is undoubtedly a female, while the Nagasaki bird may possibly be a male. As the series covers the time from the autumnal molt until the middle of June next year, and as there is no perceptible increase of the white color to be observed, it seems fair to conclude that the quill pattern of the females of the second year remains nearly unchanged until the molt in the third autumn; consequently that the black does not "gradually disappear," at least not in the females, during the second year.

We headed the foregoing series with a September female just molting and another one having just finished the molt of her second autumn. No. 96209 (U. S. Nat. Mus.) is also a September male, collected by Blakiston at Yubutz, Yezo, September 13, 1882 (Blak., No. 2957), which has just passed the molt, traces of the "sheaths" still adhering to the basis of several of the quills, while the first primary and the innermost secondary is not yet fully grown out. That it is not a bird of the year is plain from the fact that some of the feathers on the back are blackish, while nearly all the lesser wing coverts are black; that it is not much more than a year old, I think, will be plain from the pattern of the quills, the secondary and primary corresponding to those of the female already figured, being figs. 4 and 5, pl. xlv. It will be seen by a comparison with figs. 2 and 3 that the difference in male and female in the quill pattern during this stage is slight, although the latter is evidently "more backward," as Mr. Sharpe remarks. Like the female, this specimen has the white of the head and the back suffused with yellowish. Another male in precisely the same stage of molt was shot by Capt. Blakiston on the following day (U. S. Nat. Mus., No. 107015; Yubutz, Yezo, September 14, 1882; Blak., No. 2955), has the wing pattern essentially similar, the fifth primary having only a little more white in the inner web along the shaft, but on the proximal secondary the black is reduced to a slight dusky trace in both webs. A third male, shot by the same gentleman on the last day of the same month (U. S. Nat. Mus., No. 96225; Blak., No. 3031), is absolutely similar, but there is hardly a trace of dusky left on the proximal secondary. In all three the black on the outer webs of the outer primaries extends considerably towards the base, but is especially pronounced and extensive in the last-mentioned specimen. These three examples being shot nearly at the same time show plainly the range of individual variation in regard to the quill pattern, and demonstrate the necessity of dispensing with the theory of a gradual change taking place during the following winter, a conclusion furthermore strengthened by an inspection of the following specimens: U. S. Nat. Mus., No. 96222 (♂, Yezo, Oct. 10, 1882; Blak., No. 3101), very much like the bird figured (figs. 4 and 5), but the outer web of the proximal secondary nearly entirely white, and black on outer webs of outer primaries very heavy; No. 96201 (♂, Yokohama, Nov. 20, 1882), nearly identical with No. 96225, but black on

outer webs of outer primaries more like No. 96209; No. 96202 (♂, Nagasaki, Dec. 25, 1882), quite similar. Henson's No. 157 (♂, Hakodate, April 16, 1884) and Stejneger's No. 2035 (♂, Petropaulski, May 17, 1883), both in full summer plumage, are also identical with the foregoing specimens. Finally I have to mention a male which I shot at Petropaulski, Kamtchatka, on May 17, 1883 (U. S. Nat. Mus., No. 92685); it is in full summer plumage, black-backed, and I dissected it myself; it is also the latest as to date in the series of males, yet it has more black on the quills than any of the foregoing ones, the proximal secondary and the fifth primary being in fact absolutely identical with those of the female, figs. 2 and 3.

So far our material has been ample and our conclusions, I think, safe. There remain only seven specimens, the quill pattern of six of which differ considerably from that of the foregoing series (figs. 2–5). Although taken from the most extreme specimen, pl. xlv, fig. 6 represents very well the fifth primary of this group, as compared with figs. 3 and 5, while the proximal secondary is pure white, or nearly so (all or most of the secondaries being in fact similar). The first bird of this series to attract our attention is No. 96203, collected by Mr. Ringer at Nagasaki, December, 1879, and by him designated as a female. Nearly all the secondaries are pure white; the black on the outer web of the four outer primaries does not extend further down than on the inner web, and the fifth primary is colored very much like the one figured (fig. 6). Should the determination of the sex be correct, I should think it most probable that this pattern had been assumed after the molt in the third autumn, since the difference seems to be too great to be only an individual variation of quill pattern (fig. 3). A September male (Yezo, Blakiston, No. 2956; U. S. Nat. Mus., No. 96200) and a summer bird, male, collected in the Kurils by Mr. Snow (U. S. Nat. Mus., No. 96198), on the other hand, are quite similar, having the black apical patch on the fifth primary somewhat larger than in fig. 6, the latter being collected at Hakodate in March by Capt. Blakiston (U. S. Nat. Mus., No. 96197). It will be observed that the difference between these males and the lighter ones already referred to the type represented by figs. 4 and 5 is not so great as to preclude the possibility of their being only individual variations of the same stage of plumage, and it must be admitted that the three last specimens of our collection, which we have not yet mentioned, seem to point in this direction. The first of these is a ♂ collected by Mr. Henson at Hakodate, May 16, 1883 (U. S. Nat. Mus., No. 96199), the left wing of which is quite normal, with a fifth primary like fig. 6, but with some dusky marks on the proximal secondary. In the right wing, however, fourth and fifth primaries, although apparently fully grown, are considerably shorter than normally, and the greater pureness of the white color at once indicates that they are of more recent origin than the rest, in other words, that they have recently grown out in the place of the old ones which had been lost

accidentally; of these new feathers the fifth primary has quite as much black as fig. 5, while the fourth one in the inner shows even more than the average *female* after the molt in the second autumn, though the outer web is pure white, except at the tip, a feature only visible in a few of the most extreme specimens. The other bird is an unsexed specimen in the middle of the autumnal molt (Henson's No. 39, Hakodate, Aug. 14, 1882) contour feathers as well as remiges and rectrices being shed; in the wing, which even in the old plumage belongs to the extreme white type, the five proximal primaries are fully grown; the third and fourth are still small, while the two outer ones as well as all the secondaries belong to the old plumage. So much can be said from this specimen that the new feathers have just as much black as the old ones, and that in this bird, at least, the new molt would not have brought on an increased amount of white. To this may be successfully replied, however, that this bird had already at some previous molt obtained its maximum of white, and that it consequently does not prove that at the molt in the third autumn the quill pattern of figs. 2–5 is not exchanged for that of the extreme white type. Nor does the last specimen before me, a female which I collected in Kamtchatka, May 24, 1883 (U. S. Nat. Mus., No. 92688), prove much either way. Although being surely a female it has a fifth primary like fig. 5 (♂) and a proximal secondary nearly white. It is consequently whiter in the quill pattern than any female in the series, the sex of which is ascertained beyond a doubt. As I have pointed out above, the Kamtchatkan birds seem to have a somewhat *darker* wing than the birds breeding in the south. Is the present specimen, therefore, a bird in the fourth year, or is the unusual amount of white simply due to individual variation?

After having thus examined a series of about seventy examples, we are reluctantly forced to admit that still more examples are needed in order to get at the bottom of the question. About twenty more white-winged *M. lugens*, collected in the north of Japan between the beginning of August and the middle of September, in the different stages of molt, and accurately sexed by dissection, will be necessary to end the dispute. Will our friends in that country help us to complete the series and end the dispute? But no more young birds with "brown" wings need be slaughtered.

Mr. Henson's thirteen specimens having been mentioned during the above already too lengthy discussion, I consider it unnecessary to refer to them more particularly.

Motacilla grandis Sharpe. (229)

As with the foregoing, it will be most instructive to begin with the synonymy as follows:

1835.—*Motacilla lugubris* Temminck, Man. d'Orn., 2d ed., III, pp. li, 175 (*part., nec* 1820).

1847.—*Motacilla lugens* Temminck & Schlegel, Fauna Japon., Aves, p. 60, pl. xxv (*nec* Kittlitz, 1833).—? Blakiston, Ibis, 1862, p. 319.—*Id.*, Chrysanth., 1882, p. 522.—*Id.*, *ibid.*, 1883, p. 31.—*Id.*, *ibid.*, 1883, Feb., p. ——. *Id.*, *ibid.*, 1883, p. 174.—Seebohm, Ibis, 1879, p. 31.—Blakist. & Pryer, Tr. As. Soc. Jap., x, 1882, p. 155.—Jouy, Pr. U. S. Nat. Mus., vi, 1883, p. 290.

1866.—*Motacilla japonica* Tristram, Ibis, 1866, p. 291 (*nec* Swinh., 1863).—Swinhoe, Ibis, 1874, p. 156 (*part.*).—Blakist. & Pryer, Ibis, 1878, p. 236 (*part.*).—*Id.*, Tr. As. Soc. Jap., viii, 1880, p. 220 (*part.*).—Blakist., Amend. List B. Jap., p. 52 (1884).—Stejneger, Orn. Expl. Kamtsch., p. 289 (1885). Seebohm, B. Jap. Emp., p. 112 (1890).

1885.—*Motacilla grandis* Sharpe, Cat. B. Br. Mus., x, p. 492.
Motacilla immutabilis Blakiston, MSS. and labels.

Mr. Sharpe was undoubtedly correct in giving this species a new name, since Swinhoe (who afterwards, however, confounded the two species) bestowed the name *M. japonica* upon "the black-backed race [of *M. ocularis*] * * *, peculiar to the Japanese islands" (Ibis, 1863, p. 309, footnote), which, of course, is the true *M. lugens*.

It has already been remarked under the head of *M. lugens* that the changes of plumage in the two Japanese species of Wagtails are quite different, and this statement does not apply to the contour feathers alone, but to the quills as well, for it is evident that *M. grandis* does not pass through the "brown" stage of *M. lugens*, as the young birds upon leaving the nest have the white and black of the quills as strongly contrasted as the adults, while the white color in this stage of the wings, which lasts until the molt in the autumn of the next year, is somewhat more extended than in the corresponding stage of *M. lugens*. However, all the quills are marked with dusky, except occasionally one or two of the inner secondaries. The male, as a rule, seems to be a trifle more white than the female. The series of thirteen specimens before me seems to prove that no change takes place in the quills between the molts. After the autumnal molt the next year all the secondaries become pure white, and the black on the inner primaries is greatly reduced, so that these parts now exactly resemble the corresponding quills in the most extremely white *M. lugens*. On the outer primaries the black is also somewhat restricted, but not so much so as in *M. lugens:* the black tips are much longer, and the black on the first primary reaches nearly always to the base, thus presenting a very marked difference from the adult *M. lugens* in the corresponding plumage.

Of this species Mr. Henson's collection only contains a single specimen (No. 821), a female, in the first year, collected at Hakodate, December 5, 1885; U. S. Nat. Mus. No. 120527.

Motacilla melanope Pall. (230)

♂, No. 139, Hakodate, September 17, 1884; ♀, No. 163, *ibid.*, September 10, 1884. U. S. Nat. Mus. No. 120541-2.

Anthus maculatus Hodgs. (225)

Two ♂ ♂, Nos. 698, 154; Hakodate, November 25 and 27, 1883; ♀, No. 28, *ibid.*, July 19, 1886. U. S. Nat. Mus. Nos. 120544, 120543, 120545.

Turdus cardis Temm. (260)

Four specimens, of which one just out of the nest, all in the olive plumage. Two of them are marked ♂, but this must be a mistake, for, as I shall show, the sexual difference in coloration is very pronounced in all plumages.

When Seebohm treated of the Thrushes in the fifth volume of the "Catalogue of the Birds in the British Museum" (1881), the young in the first plumage were unknown. Since then nestlings and young ones just out of the nest have been collected by Mr. Jouy and Mr. Henson. I have also a full series of the other plumages, so that a few remarks on the different plumages and their changes may not be out of place.

♂ in *nestling plumage* is of a blackish slate color above with but a very slight suffusion of fulvous, and with very distinct pale buffy shaft streaks; tail and wings similarly colored, though more fulvous towards the outer margins of the feathers; the terminal spots of ochraceous buff on the upper wing-coverts are rather large on the middle row, but nearly obsolete on the larger ones; the dusky spot on the under side are large, and the buffy tinge suffusing the white ground color rather pale (U. S. Nat. Mus., Nos. 88607, 88612).

The *nestling* ♀ differs considerably, being of a dark, dull, tawny olive above, with dusky margins to the tips of the feathers and narrow, buffy shaft streaks more or less pronounced; tail and wings more fulvous than in the male, without any slaty cast, and the ochraceous tip to the greater upper wing-coverts rather larger and well defined; sides, breast, and fore-neck more strongly suffused with ochraceous (U. S. Nat. Mus., No. 88608, and Henson, No. 5).

♂ *jun., after the first autumnal molt* differs very much from the female in corresponding plumage. The entire upper surface is of a dull plumbeous or bluish slate gray, nearly pure on lower back and wing, and but slightly suffused with fulvous on head and interscapulars, but more strongly so on the secondaries, and especially the greater upper wing-coverts which have the tips narrowly margined with pale ochraceous buff; sides of head dusky, with but faint fulvous suffusion; fore-neck and breast very thickly spotted with large blackish, fan-shaped terminal spots, the visible ground color between them being pale plumbeous on the chest and lower neck, whitish on throat and chin, but suffused with ochraceous; rest of under surface pure white, tinged with plumbeous on the flanks and with ochraceous on the sides of the breast, these parts, besides, spotted with blackish like the breast; under wing-coverts ochraceous rufous. (This description is taken from a specimen collected by Mr. P. L. Jouy, in Fusan, Corea, April 26, 1886. Jouy, No. 1585.)

♂ *after the following* (second) *autumnal molt* resembles the above in the color of the back, but the head and face are blackish and the fore-neck and chest are of a uniform dull, brownish slate, only the chin being whitish; secondaries and greater upper wing-coverts are still strongly washed with fulvous, but the ochraceous wash on the under side has disappeared, and the under wing-coverts are slate-gray in the middle, being only broadly margined with ochraceous (U. S. Nat. Mus., No. 96289).

In the *fully adult* ♂ all traces of fulvous disappear; the black of the head, fore-neck, and chest becomes darker and pervades the back, and even the under wing-coverts are blackish (U. S. Nat. Mus., Nos. 88606, 96288).

The *adult* ♀ is olive above; fore neck, chest, and flanks strongly suffused with ochraceous spotted with black; under wing coverts bright ochraceous. *In summer* slightly gray above, *in winter* more fulvous. (Numerous specimens.)

Measurements.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
U. S. Nat., 120326	Henson, 1235	♀ ad	Hakodate, Yezo	Oct. 6, 1884	110	73	17	30	27
U. S. Nat., 120327	Henson, 1241	(♀) ad	do	do	109	73	18	30	28
U. S. Nat., 120328	Henson, 1233	(♀) ad	do	Oct. 4, 1884	111	72	18	30	29
U. S. Nat., 120329	Henson, 5	(♀) ad	do	July 20, 1883	108	63	18	30	.....
Christiania, N	Petersen, 70	♀ ad	Nagasaki, Kiusiu	Nov. —, 1886	110	71	19	30	28
U. S. Nat., 96288	Ringer, 18	♂ ad	do	Dec. 13, 1876	114	76	19	30	28
U. S. Nat., 88606	Jouy, 495	♂ ad	Fuji, Hondo	July 13, 1882	118	80	19	29	27
U. S. Nat., 88611	Jouy, 454	♀ ad	do	July 8, 1882	111	70	18	29	27
U. S. Nat., 88608	Jouy, 594	♀ juv	do	July 24, 1882	106	62	18	29	.....
U. S. Nat., 88612	Jouy, 526	♂ juv	do	July 16, 1882	85	30	15	28	27
U. S. Nat., 88607	Jouy, 381	♂ juv	do	July 2, 1882	71	18	14	29	26
U. S. Nat., 96289	Blak., 758	♂ ad	Hakodate, Yezo	Oct. 21, 1861	112	76	....	30	28
U. S. Nat., 96287	Blak., 2356	(♀) ad	Sapporo, Yezo	Oct. 12, 1877	111	75	18	29	28

Turdus eunomus TEMM. (264)

A normally colored pair of this species is in Henson's collection: ♂ ad., No. 81; Hakodate, March 15, 1884; ♀, No. 658, same locality and date; U. S. Nat. Mus., Nos. 120330–1. The latter specimen agrees very closely with Naumann's, fig 1, pl. lxviii, Naturg. Vög. Deutschl., Vol. II, and his excellent description of the same specimen on p. 291, which, however, he erroneously refers to *T. naumanni*. Two females collected by Jouy in Tate-Yama, Hondo, October 27, 1882 (U. S. Nat. Mus., Nos. 91311, 91312), agree even better with the figure in question, as they have the spots on the flanks still browner than Henson's bird.

Turdus naumanni TEMM. (261)

A pair of this comparatively rare Thrush in Henson's collection, and a female collected by Blakiston in Yezo, resemble in all essential points

specimens from Shanghai, China, and from Corea. None of them show any inclination toward *T. ruficollis* PALL., being in every respect quite typical.

Measurements.

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Total length.
120332	Henson, 77....	♂ ad.	Hakodate, Yezo.....	Mar. 15, 1884	135	90	17	33	27	....
120333	Henson, 78....	♀ ad.	....do	....do	125	89	18	33	27	....
96291	Blak., 3212....	♀ ad.	Sapporo, Yezo	Oct. 23, 1882	130	93	18	31	27	250

Turdus pallidus GM. (259.)

Mr. Henson sends two specimens, No. 744, Hakodate, November 23, 1885, apparently an old male, and No. 807, November 7, 1885, a younger bird of the same sex. (U. S. Nat. Mus. Nos. 120334–5.)

This species appears to be very rare in Yezo, for it seems that Capt. Blakiston did not obtain it in that island, though he was able to compare a specimen, apparently in the Hakodate museum, with his Chinese examples. Whitely only collected one specimen. These two specimens, with those of Mr. Henson, appear to be the only ones obtained so far in the North Island.

In Hondo the species occurs more frequently, as well as in Kiusiu, and in the Liukiu Islands, though by no means a common bird. All the specimens which I have seen were winter birds, and I do not think there is any valid record of the species breeding in the country.

I can discover no differences beyond individual variation in a series of eighteen examples from the various Japanese islands, Corea, China, Liukiu, and Formosa.

Turdus chrysolaus Temm. (263)

Two specimens from Hakodate (♂ ad., No. 234, May 20, 1885; and a younger unsexed specimen, No. 721, October 4, 1884, U. S. Nat. Mus. Nos. 120336–7) agree with others of the same species from Hondo, Kiusiu, Liukiu, and Corea. The male is perfectly adult, with uniformly dusky throat and without light tips to the greater upper wing coverts; but there are a few dusky spots on the sides of the breast. These are only "recollections," not "remnants," of the first plumage. This specimen is also interesting as being taken later in spring than any of the others examined by me. Compared with the breeding male of *T. jouyi* (July 2) it bears out the difference in the coloration of the throat in the two species, as pointed out in the original description of the latter (Proc. U. S. Nat. Mus., x, 1887, p. 5). I can throw no further light upon this form, and additional specimens of these birds from various parts of Japan, and collected at all seasons of the year, are very desirable.

Turdus obscurus GM. (262)

According to the account given by Blakiston and Pryer, this species, although of regular occurrence, must be comparatively rare in Japan. It has hitherto not been found in Yezo (Blakist., Amend. List B. Jap., p. 26), and Mr. Henson's specimen (No. 1274, ♀ juv.; Hakodate, October 10, 1882) is therefore of particular interest as extending the range of this species into the Northern Island. (U. S. Nat. Mus. No. 120338.)

The scarcity of the Eyebrowed Thrush in the northern portions of Japan is very remarkable, when we consider that it is common in Kamtchatka.

Cichloselys* **sibiricus** (PALL.). (258)

The Siberian Thrush is comparatively rare in Japan, but is found sparingly breeding at least in Hondo. Its occurrence in Yezo has not been recorded with certainty, and Blakiston (Amend. List B. Jap., p. 26) enumerated it among the "Species not found in Yezo or the Kurils." Mr. Henson, however, has been so fortunate as to secure specimens at Hakodate in June, both in 1884 and 1885 (No. 83, ♂, June 3, 1884; No. 159, ♀, June 22, 1885). (U. S. Nat. Mus. Nos. 120339–40.)

The male has not quite obtained its final plumage, for the wing is still more or less tinged with fulvous, and the chin is white, in fact closely resembling a breeding male collected by Mr. Jouy at Fuji, July 14, 1882 (U. S. Nat. Mus., No. 88609). The female is a fully adult bird characterized by the very pronounced plumbeous cast of the back, and by the median upper wing-coverts being uniform and not marked with the buffy deltoid spots characteristic of the bird of the year.

Mr. Seebohm, in the fifth volume of the British Museum Catalogue, gives *Turdus auroreus* PALLAS as the female of the present species, following Gloger, Brehm, and Gray. Looking apart from the locality, Kadiak, as indicated by Pallas, the following points of his description can not be reconciled with *sibiricus:* "Subtus tota ferrugineo-lutea,

*The "Siberian Thrush" has the wing constructed somewhat differently from that of the other Japanese Thrushes. The second primary, as a rule, is very long, nearly, or quite, as long as the fourth; second, third, and fourth thus forming the tip of of the wing. Furthermore, it has only the third and fourth primaries sinuated in the outer webs toward the tips, while in the other Thrushes the fifth is also usually sinuated. The tail in the present species is conspicuously rounded, against square, or nearly so, in the others. With these structural differences there is also associated a peculiar pattern of coloration, especially of the under surface of the wing, which induced Mr. Seebohm to include it in the genus *Geocichla*, in which he also puts *Oreocincla*. To the latter *C. sibiricus* has undoubtedly nearer relationship than to *Turdus*, though there seems to be enough structural characters to warrant the separation of *Cichloselys* and *Oreocincla*.

The name *Cichloselys* was originally applied by Bonaparte to a heterogeneous assemblage of Turdine birds belonging to different groups at that time already named. Since he has not indicated any particular species as type, I feel justified (A. O. U. Code, Canons XXI, XXIV) in restricting the name to the only species of the group requiring a separate name.

versus anum pallidior * * * Remiges nigricantes, margine exteriore luteæ, 2 ad 4 exteriore vexillo angustatæ * * * tectrices secundariarum et incumbentes apice exterius late luteæ * * * Cauda æqualis * * *" In all these points Pallas's description agrees with *Hesperocichla nævia* (Gm.) which breeds in Kadiak, Alaska.

Monticola manilla (Bodd.). (256)

Blue and Red Rock-Thrush. Iso hio-dori.

1776.—*Turdus solitarius* Müller, Natursyst., Suppl., p. 142 (*nec* Lin., 1758).—*Petrocossyphus* s. Dresser & Sharpe, B. of Eur., II, pp. 150, 161 (1872).—*Monticola* s. Swinhoe, Ibis, 1874, p. 157.—*M. solitaria* Blakist. & Pryer, Ibis, 1878, p. 240.—*Id.*, Trans. As. Soc. Jap., VIII, 1880, p. 225.—*Id., ibid.*, X, 1882, p. 163.—Seebohm, Cat. B. Brit. Mus., V, p. 319 (1881).—*Id.*, Ibis, 1887, p. 174.—Blakist., Chrysanth., 1882, p. 521.—*Id., ibid.*, 1883, p. 33.—*Id.*, Amend. List B. Jap., p. 58 (1884).—Stejneger, Proc. U. S. Nat. Mus., IX, 1886, p. 646.—*Id., ibid.*, X, 1887, pp. 405, 415, 485.—*Id.*, Zeitschr. Ges. Ornith., IV, p. 174 (1888).

1776.—? *Turdus philippensis* Müller, Natursyst., Suppl., p. 145.

1783.—*Turdus manilla* Boddaert, Tabl. Pl. Enl., p. 39.

1788.—? *Turdus eremita* Gmelin, S. N., I, p. 833.

1788.—*Turdus manillensis* Gmelin, S. N., I, p. 833.—Kittitz, Mém. Sav. Étr. St.-Pétersb., I, p. 246 (1831).—*Id.*, Denkw., II, p. 186 (1858).—Temm. & Schlegel, Fauna Jap., Aves, p. 67 (1847).—*Petrocossyphus m.*, Hartlaub, Journ. Orn., 1854, p. 167.—Cassin, Proc. Acad. Philada., 1862, p. 314.—*Petrocincla m.* Blakiston, Ibis, 1862, p. 319.—Whitely, Ibis, 1867, p. 199.—*Copsychus manilensis* Martens, Preuss. Exp. Ost-As., Zool., I, p. 368 (1877).

1858.—*Petrocincla violacea* Swinhoe, Zoologist, 1858 (p. 6228).

1881.—*Monticola cyanus solitaria* Seebohm, Cat. B. Brit. Mus., V, p. 318 (*part*).

1890.—*Monticola cyanus* Seebohm, B. Jap. Emp., p. 53.

There has of late been written a great deal in regard to the changes of plumage which take place in the present species, and many theories have been advanced, but no satisfactory solution has been arrived at as yet.

In an elaborate memoir (B. of Eur., II, pp. 149–163, 1872) Messrs. Sharpe and Dresser attempted to demonstrate that the male Blue-and-Red Rock-Thrush is only "blue and red" during a comparatively short transitional period of its life, and that the old birds are entirely blue, like the European Blue Rock-Thrush, basing their conclusion upon the fact that wholly blue birds are found also in the East, in China and Indo-China. Mr. Seebohm, on the other hand, rejects this theory (Cat. B. Brit. Mus., V, pp. 319–320, 1881), and in doing so I think he is absolutely correct. But he solves the mystery of the Eastern blue birds by extending the range of *M. solitaria* (Lin.) (10 ed.=*M. cyanus* Lin., 12 ed.), the European bird, eastward into China, and in this I think he is wrong. The eastern bird is smaller, with a comparatively smaller bill; its wing formula is different, and the blue color is deeper and darker. I have no doubt as to its distinctness, but whether a binominal or only a trinominal should be used to designate it I am at

present unable to say. It seems as if the name *Monticola pandoo* (SYKES) is available for this form.

Sharpe and Dresser (*tom. cit.*, p. 161) indicate the possibility that the Rock Thrush from Japan may turn out to be a different species—characterized by a greater brilliancy of coloration and longer tarsus. Without specimens from the Philippine Islands it is difficult for me to form an opinion. All I can say is that I find no essential difference in proportion or coloration between Japanese, Liukiuan, Formosan, Chinese, and Corean examples. Eleven specimens from China, Corea, and Formosa vary in the wing between 115^{mm} and 128^{mm} (average 122^{mm}) and in the tarsus between 28^{mm} and 31^{mm} (average 30^{mm}), while fourteen specimens from Japan and Liukiu measure in the wing 116^{mm} to 128^{mm} (average 122^{mm}) and in the tarsus 29^{mm} to 32^{mm} (average 30^{mm}).

Mr. Seebohm (Cat. B. Brit. Mus., v, p. 320) asserts that "*males of the year* scarcely differ from adult females, except in having the ground-color of the under parts, especially on the breast and belly, tinged with blue." In this I think he is wrong, for the material before me clearly indicates that the young male in the first autumn is *essentially* like the adult male at the corresponding season. To substantiate this assertion I select from my series four males collected in September and November, viz:

♂ ; Jouy Coll., No. 1177; Chemulpo, Corea, September 7, 1883.

♂ ; U. S. Nat. Mus., No. 86141; Hongkong, China, November 12, 1881; Jouy Coll.

♂ ; U. S. Nat. Mus., No. 85830; Kowloon, China, September 28, 1881; Jouy Coll.

♂ ; U. S. Nat. Mus., No. 85831; Amoy, China, September 18, 1881; Jouy Coll.

The first two specimens at once proclaim themselves as young birds by the comparatively abraded condition of wings and tails. In the young birds the remiges and rectrices remain from the first plumage, and are not shed in autumn, as in the old birds; hence the fresher condition of these feathers in the latter. I need hardly add that the comparatively abraded quills here spoken of are not those of old birds with these feathers yet unmolted, for in that case they would have been uniform blackish with dark bluish edges and no white, while those I refer to have very broad and light edges, white at the tips. The condition of the quills at this season is a certain indication of the age of the bird when no trace of the first plumage is left. Such a trace, however, is still visible in the Corean example enumerated above, for this specimen has on each tail-feather (central pair absent) a rufous, somewhat heart-shaped, but ill-defined spot near the tip, separated from the broad terminal margin of similar color by a blackish line. In the Hongkong specimen traces of the same are still visible, but the tail is more abraded. The very fresh condition of the corresponding quills in the two other specimens testifies to their having been but recently acquired; the birds are consequently more than a year old.

The two specimens of each group mentioned above agree in every point. The differences between the two groups, which reveal themselves upon closer examination, may be tabulated as follows:

Adult ♂♂.	♂♂ in first autumn.
Bill blackish throughout.	Bill horny brown, basal half of lower mandible particularly pale.
The drab-colored portion of the upper parts extends only to the middle of the back, and the subapical dusky band to the feathers on head, neck, and interscapulars is very indistinct.	The drab color of the upper parts extends nearly to the rump, and the subapical dusky band to the feathers is very pronounced, causing a distinct scaly appearance.
Blue of lower back, rump, upper tail-coverts, and under parts deeper and purer, with fewer and narrower terminal markings of blackish and pale drab-gray.	Blue of rump, upper tail-coverts, and under parts paler and dingier, with the markings more numerous, broader, and more distinct.
Brown of under parts with fewer and narrower terminal markings.	Brown of under parts with more numerous and broader markings.
A distinct bluish supraloral streak, and a ring of similarly colored feathers round the eye.	A distinct whitish supraloral streak, and a ring of similarly colored feathers round the eye.
Wing feathers black with blue edgings of same tint as rump, and narrow white margins to the tips.	Wing feathers blackish brown with pale smoke-gray edgings and broad white margins to the tips, these white tips being particularly broad on primary and greater coverts.
Tail without any particular mark near tip.	Tail with marks as described above.

There is no doubt that Mr. Seebohm (*op. cit.*, p. 320) is correct in the main in asserting that the males during [February and] March cast off the terminal and subterminal bars to the feathers, which they assumed at the autumnal molt, leaving the bird in full breeding plumage. But his material must have been deficient when he states that "in the chestnut feathers [of the autumnal plumage] traces only of the subterminal dark bars are observable." He can have had no fully molted male, for in such a one he would have found not only the pale terminal bar but also a bluish one preceding the dusky bar.

Measurements.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
Tokio Educat....	Tasaki.....	(♀)...	"North part of Liukiu"	.....	117	79	20	31	30
Christiania, N....	Petersen, 1....	♀.....	Urakami, Kinsiu.....	Dec. 11, 1885	121	80	23	32	30
U. S. Nat., 120341.	Henson, 23....	(♀)ad.	Hakodate, Yezo.....	July 18, 1885	123	81	20	29	....
U. S. Nat., 114663.	Jouy, 1522....	♂ad ..	Tsushima	May 26, 1885	129	84	22	31	29
U. S. Nat. 111664.	Namiye, 3b ...	♂ad ..	Miyakeshima, Idzu ..	May 3, 1887.	128	85	22	31	29
U. S. Nat., 21148.	Stimpson, γ183	(♀) ...	Oshima.....	Jan.. 1855 ..	120	81	....	31	29
U. S. Nat., 21146.	Stimpson, γ169	(♂)ad.	Liukiu.....	.....	123	84	22	29	28
U. S. Nat., 21147.	Stimpson, γ165	(♀) ...	Liukiu.....	.....	116	78	22	30	28
U. S. Nat., 109473.	Namiye.....	♀.....	Napa, Liukiu.....	Mar. 5, 1886	120	80	23	30	30
U. S. Nat., 96277.	Ringer, 6	♂juv .	Nagasaki, Kinsiu.....	Oct. 30 1876	122	80	21	30	30
U. S. Nat., 96276.	Blak., 1326....	♂ad ..	Hakodate, Yezo.....	May ——..	128	84	21	30	28
U. S. Nat., 96278.	Blak., 1329....	♀ad ..	Hakodate.....	May ——..	121	84	21	30	27
U. S. Nat., 114727.	Ringer, 14.....	♂ad ..	Kiusiu	Jan. or Feb.	122	78	22	31	27
U. S. Nat., 114728.	Ringer.....	♀.....	Kiusiu	Jan. 21. 1887	122	84	20	30	29

Phœnicurus auroreus (PALL.). (253)

♂ ad., No. 105, Hakodate, Nov. 8, 1883; ♀ ad., No. 337, *ibid.*, Sept. 17, 1883. U. S. Nat. Mus., Nos. 12345–6.

Identical with birds from the southern islands and from China. Young Japanese birds in the first plumage are among the desiderata of the U. S. National Museum.

Ianthia cyanura (PALL.). (251)

♂ ad., No. 161, Hakodate, Nov. 5, 1883. ♀♀ ad., No. 162, May 5, 1884; No. 967, April 29, 1884. U. S. Nat. Mus., Nos. 120344, 120359–60.

U. S. National Museum would like to get young birds in the first plumage.

Melodes calliope (PALL.). (252)

Two ad. ♂♂, No. 219, Hakodate, Oct. 8, 1881; No. 793, *ibid.*, Sept. 12, 1886. U. S. Nat. Mus., Nos. 120342–3.

Quite similar to the scarlet-throated males from Kamtchatka, China, Nagasaki, and the Yayeyama Islands. These are all characterized by having the lower fore-neck and upper breast more or less olive-gray (Ridgw., Nomencl. Col., pl. ii, no. 14), and the first one or two rows of feathers back of the scarlet throat pure white with a blackish band across the tips. Two scarlet-throated birds collected by Capt. Blakiston in Yezo (♂, U. S. Nat. Mus., No. 96269, Yubutz, May 18, 1882; Blak., No. 2858. ♀, Mus. No. 26271, Mukawa, May 26, 1882; Blak., No. 2862) differ considerably from all the other specimens before me. The whole under parts are lighter and whiter medially; the gray is entirely absent on lower fore-neck and breast, these parts being of a very pale clay color (Ridgw., Nomencl. Col., pl. v, no. 8); and there are only a few grayish spots to indicate the blackish band noted above. Both of Blakiston's birds are collected in May, but some of the other specimens are obtained during the same month, or even later in the summer, so that season does not seem to have anything to do with this difference, but it may be that it is due to age. At all events, here is an interesting question well worth the attention of the Japanese field ornithologists. Does the Ruby-throated Nightingale breed in Yezo or in the Kurils, and, in such a case, how are the breeding birds colored with reference to the above differences? The young in the first plumage of this common bird are apparently yet unknown and would be a great prize. Not being on the mainland of Kamtchatka at the proper time, I myself was unable to secure any in that plumage.

Larvivora cyane (PALL.). (250)

Of this species Capt. Blakiston says (Chrysanth., February, 1883): "This is by no means an abundant species in Japan, and I know of only one female specimen, which is in the Education Museum:" and during his many years of collecting in Japan he only obtained one speci-

men. Mr. Jouy secured a breeding male not yet in full plumage on Fuji-Yama, and he and Mr. Smith collected two young males at Chiusenji Lake. Mr. Henson has been more fortunate, for he has placed before me not less than twelve specimens from Hakodate, viz, four fully adult males, one male in the second spring, one male in the first autumn, and six females. The dates and numbers of these specimens will be found in the subjoined table of dimensions.

The specimen which I take to be a young female of the previous year (No. 1405), because it has quite distinct tawny terminal edges to the greater wing-coverts, is similar to the young males in the first autumn, except that there is hardly any blue on the upper parts, which, besides, are more tawny. The tail also is dull russet olive above, but a few of the upper tail coverts are strongly suffused with dull indigo. These feathers are only scattered and placed asymmetrically, and as they do not seem to have been molted very recently, I suppose that they have grown out to replace feathers accidentally lost. It may therefore be that in the first spring the females assume the blue rump by actual molt. It is possible, however, that the blue is assumed without a molt, and I may mention that in the other female specimens before me there is a great amount of individual variation in regard to the extent and intensity of the blue color. All these I take to be fully adult birds which have passed the molt of the second autumn, as the wing coverts are quite uniform without any trace of tawny tips. In No. 1401 the blue mark is rather strong, but confined to the lower rump, upper tail-coverts, and upper side of tail, contrasting strongly with the olive of the back. No. 1392 is quite similar, but on upper tail-coverts and tail the olive is much more pronounced. In Nos. 1482 and 1490 the blue is much paler, and it contrasts much less with the back, which is also slightly suffused with a faint tinge of indigo, which in the latter is quite pronounced on some of the wing-coverts. Finally, No. 1488 has no distinct blue in its plumage, the upper tail-coverts being, in fact, strongly marked with tawny. Yet its perfectly black bill and the uniformly colored wing-coverts, as well as the absence of well-marked dusky scaling on the lower parts, prove it to be an old bird. Generally speaking, these adult females may be said to resemble the young males as described by Capt. Blakiston, but with the blue color more restricted and less extensive, with the buffy mark on the lower parts less bright, and with the dusky margins to the jugular feathers less distinct.

It appears that in the first spring, that is, when a little less than a year old, the young males assume the blue plumage of the old male. The quills not being shed at this molt remain as in the young plumage until the following autumn, the tawny marginal tips of the great coverts being very conspicuous by contrast. In this transition plumage they undoubtedly breed, for the breeding bird which Mr. Jouy collected at Fuji, July 14, 1882 (U. S. Nat. Mus., No. 91457), is in this stage. The wings are very much abraded and the tawny tips to the great wing-

coverts nearly worn off; but Henson's bird (No. 1576), which was taken earlier in the season, is perfect in this respect, even more so than the bird from Idzu (U. S. Nat. Mus., No. 109337). The two latter birds exhibit another trace of youth, viz, a strong mark of buff on the sides of the abdomen. Of this color there is hardly a trace in Jouy's bird.

Measurements.

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Total length.
109337	Namiye	♂horn	Amagisan, Idzu, Hondo.	May 3, 1885	75	48	11	27	19	....
91457	Jouy, 513	♂horn	Fuji, Hondo	July 14, 1882	73	47	12	25	19	....
91377	Jouy, 660	♂juv.	Chiusenji Lake, Hondo.	Sept. 3, 1882	74	46	12	26	21	....
96264	Jouy, 662	♂juv.	do	do	76	51	12	26	21	....
96263	Blak., 1267	♂ad.	Hakodate, Yezo	May 9, 1873	77	51	12	26	20	137
120347	Henson, 160	♂ad.	do	May 15, 1884	74	47	11	27	18	....
120348	Henson, 1500	♂ad.	do	May 19, 1885	75	50	11.5	27	19	....
120349	Henson, 1577	♂ad.	do	June 7, 1885	74	47	12	26	19	....
120350	Henson, 1603	♂ad.	do	June 30, 1886	77	51	12	26	19	....
120351	Henson, 1576	♂horn	do	June 7, 1885	74	47	12	27	20	....
120352	Henson, 1144	♂juv.	do	Sept. 9, 1884	76	50	11	26	20	....
120353	Henson, 1392	♀ad.	do	May 20, 1885	75	47	11	25	19	....
120354	Henson, 1401	♀ad.	do	do	74	50	11	25	20	....
120355	Henson, 1482	♀ad.	do	May 30, 1885	77	50	12	25	20	....
120356	Henson, 1488	♀ad.	do	May 26, 1885	74	47	11.5	25	19	....
120357	Henson, 1490	♀ad.	do	May 30, 1885	72	46	11	25	19	....
120358	Henson, 1405	♀horn	do	May 23, 1885	74	47	12	26	19	....
	Average measurements of 11 males				75	49	11.7	26.3	19.5	....
	Average measurements of 6 females				74	48	11.4	25.2	19.3	....

Pratincola maura (PALL.). (254)

Eastern Stonechat. Nobitaki.

1773.—*Motacilla maura* PALLAS, Reise Russ. Reich., II, (p. 728).—*Pratincola m.* SHARPE, Cat. B. Brit. Mus., IV, 1879, p. 188.—SEEBOHM, Siberia in Europe, (p. 117) (1880). *Id.*, B. Jap. Emp., p. 57 (1890).—BLAKISTON, Chrysanth., 1882, p. 473.—*Id., ibid.*, Jan., 1883, p. 33.—*Id., ibid.*, Feb., 1883, p. —.—*Id.*, Amend. List B. Jap., p. 16 (1884).—JOUY, Proc. U. S. Nat. Mus., VI, 1883, p. 280.

1835.—*Saxicola rubicola* TEMMINCK, Man. d'Orn., 2d ed., III, pp. li, 170 (*nec* LIN.).—TEMM. & SCHL., Fauna Jap., Aves, p. 58 (1847).—*Pratincola r.* BLAKISTON, Ibis, 1862, p. 318.

1863.—*Pratincola rubicola* var. *indica* SWINHOE, P. Z. S., 1863, p. 291 (*nec* BLYTH?).

1863.—*Pratincola indica* SWINHOE, P. Z. S., 1863, p. 335 (*nec* BLYTH?).—*Id.*, Ibis, 1871, p. 155.—WHITELY, Ibis, 1867, p. 197.—BLAKIST. & PRYER, Ibis, 1878, p. 240.—*Iid.*, Trans. As. Soc. Jap., VIII, 1880, p. 225.—*Iid., ibid.*, X, 1882, p. 162.

Notwithstanding all that has been written in regard to the Eastern Stonechats, there is still considerable doubt both in regard to the distinctness of the several forms and their characters and to the names to be applied, if they be considered distinct.

The question whether the Eastern birds are different from the European *Pratincola rubicola* (LIN.) is easily disposed of. The latter

(*i. e.*, the adult male) has generally the rump striped with blackish, and on the lining of the wing the white predominates. In Eastern birds the rump is in most cases unspotted, and black predominates on the under wing-coverts. These characters are now generally admitted. It may be added that the brown margins to the feathers on the upper surface in British examples are much darker than in Indian, Chinese, Korean, and Japanese specimens, and that the under surface is also deeper colored. But there is a character, hitherto apparently overlooked, which, so far as my experience goes (thirty-eight specimens), trenchantly separates the two species. On comparison it will be found that the European birds have the bill much narrower at the base than the birds from the East. Even the young in the first plumage can be easily told apart by this character. Considering this fact and the many points in which the two forms disagree, I refuse to adopt a trinominal appellation for the Eastern birds, the more since it seems as if the breeding habitats of the two species are separated by a belt of country about 600 miles wide. (Cf. Severzow, Journ. f. Orn., 1873, p. 360, footnote.)

Now, concerning the latter, it may be said that Maj. Biddulph (Ibis, 1882, pp. 272–276; Stray Feath., x, 1882, pp. 263–266) has made out a pretty strong case for those gentlemen, headed by Mr. W. E. Brooks, who insist upon the existence in India of two forms of Stonechats, both with unspotted rumps. He states that he was able to separate his birds in two series. In series *A* the males are characterized by absence of white on the nape concomitant with larger size (wing 2.70 inches to 3 inches = 68.6^{mm} to 76^{mm}), the females by brighter colors and larger size (wing 2.55 to 2.70 inches = 64.8^{mm} to 68.6^{mm}); the males of series *B* have the white patch on the sides of the neck extending "round to the back, meeting the white from the other side, so as to form a complete demicollar when viewed from above," their wings varying between 2.52 and 2.75 inches (= 64^{mm} and 69.8^{mm}); the females of the latter form are "altogether of a much darker tone," with the length of the wing 2.35 to 2.60 inches (= 59.9^{mm} to 66^{mm}). Five specimens of somewhat intermediate size he was "unable to separate by differences of color." Then he concludes as follows: "Now, it can not be denied that these measurements overlap considerably, especially among the females; but the fact remains that, after separating forty-three specimens solely by color and markings (omitting the last five undetermined), those of one form average considerably larger than those of the other, and that the greatest divergence in color is shown between those which differ most in size. It may be that the specimens that overlap in measurement are to be accounted for by hybridism—an explanation that no ornithologist can affect totally to ignore when treating of two very closely allied species found in the same locality; or it may be that some of those classed as females would have been found by more careful examination to be males that had not got rid of female

plumage. Whatever may be the explanation of this, I believe that we have here two species. The smaller species of Chat, which I have called form *B*, is evidently *P. indica* of Blyth."

In view of Maj. Biddulph's statements, we are, therefore, obliged to recognize two Indian forms of Stonechats, although not without some doubt, for it appears from his own words that the sex of the specimens has not been determined beyond doubt, and the two forms appear to occur in the same localities at the same season. In regard to the latter point, however, I may recall the case of *Cettia cantans* and *C. cantillans*, while, on the other hand, it is not absolutely clear from his notes whether the two forms *breed* in the same locality. Unfortunately, I have no authentic male specimens from India proper by which to test his conclusions, for three specimens collected by Bingham in Tenasserim appear to agree with Chinese examples to be mentioned later on. I may remark, however, that I am unable to distinguish a female said to be from Nepal (U. S. Nat. Mus., No. 95613) from other small Eastern specimens.

A comparison of my Japanese, Chinese, and Tenasserim specimens (to be called series *C*) with Biddulph's exposition leads to the conclusion that they agree with the smaller form (*B*) in size (see table of dimensions below), while in color they conform to the larger form (*A*), that is to say, the males have no white on the nape, and the females are brightly colored. It thus appears that we have three different forms of Eastern Stonechats, viz:

♂ No white on nape; ♀ bright. { Form *A*, size large. / Form *C* } size small.

♂ White on nape; ♀ dull.....Form *B* }

We may now proceed to determine the names of these three forms. Mr. Brooks and Maj. Biddulph have identified "form *B*" with *P. indica* Blyth, and as this seems to be the general opinion, and as nothing is known to the contrary, we have to accept this name.* He seems uncertain.

Gmelin (S. N., I, p. 997) describes *Motacilla tschecantschia* as "*nucha albicante, torque et macula alarum oblonga albis*," but the original description and plate by Lepechin, upon which Gmelin's diagnosis is founded, being inaccessible to me, I am unable to ascertain the true status of this name whether belonging to the smaller or the larger form. I have no access to the original description in Pallas's "Reise," but from his "Zoographia" it is evident that he imposed the name *M. maura*, by a mistake, and that he really regarded the European and Asiatic birds as belonging to the same species. Since the length of the wing, however, as given by him, equals 66.6mm, or about the average

* *Pratincola indica* Blyth, Journ. As. Soc. Bengal, xvi, 1847, p. 129. It is difficult to see why Hodgson's *Saxicola saturatior* (Gray's Zool. Miscell., 1844, p. 83) should not be used, unless it is a nomen nudum.

of the males of "form *C*," and since the description only speaks of white on the sides of the neck and not on the nape, we conclude that *M. maura* belongs to the smaller form without white on the nape, consequently to "form *C*." There remains now only to determine the name of the large "form *A*." By some Indian ornithologists it has been designated as "*P. robusta* TRISTRAM," but, as shown by Mr. Hume (Stray Feath., IX, 1880, pp. 133, 136), this name belongs only in part to our bird. Rev. Tristram originally (Ibis, 1870, p. 497) gave this name to two alleged Indian specimens of Stonechats, one of which belonged to the present large form of *P. maura*, while the other represents an entirely different species, which Oates now shows to be the larger form of *P. sibylla* from Madagascar (Fauna, Brit. Ind., Birds, II, 1891, p. 58). Mr. W. E. Brooks seems to have intended to name it, for Mr. Hume says (*op. cit.*, p. 136): "Mr. Brooks persistently urges me to assign a separate specific name to this form, and he declares that if I do not, *he will*," but I am unaware that Mr. Brooks has done so.

Since the above was written and set in type I find that Dr. Th. Pleske has discussed the same question and come to similar results (Wiss. Res. Przewalski, Zool., Vög,, pp. 46, seqs.), but too late for any other notice than the adoption of his name for "form A," the names of the three then being as follows:

1. *Pratincola maura* ("form *C*");
2. *Pratincola maura indica* ("form *B*");
3. *Pratincola maura przewalskii* ("form *A*").

In Japan only the small form, without white on the hind neck, occurs. This is very fortunate, as the name of the Japanese birds will remain unaffected, whatever be the fate of the Indian races.

As to Mr. Henson's specimens, I would call attention to the fact that the two adult males collected on August 30, are molting both quills and contour feathers, No. 194 having already finished the molt of the former. Their coloration is considerably brighter and redder than that of the October specimen in the National Museum (No. 96274); the broad light margins to the feathers of the throat are particularly bright, being of a rich vinaceous cinnamon in No. 193, and but slightly paler in No. 194.

I have above already indicated the chief color differences between the European *P. rubicola* and the Asiatic *P. maura*, at least so far as the old males are concerned. The material before me suggests another and very striking difference in the coloration of the females and the young males.

On the 5th of July, 1882, Mr. P. L. Jouy collected at Fuji a *breeding* female (U. S. Nat. Mus, No. 88637) in very abraded plumage. The whole upper side is nearly uniform dull sepia-brown; the light edges to the wing feathers are nearly worn away, and the under surface is a dirty dull buff strongly marked with tawny on the breast; *chin, throat, and upper jugulum is of the same dirty buff as the abdomen, though somewhat more whitish without trace of dusky or dark brownish.* Identical with this

specimen is Henson's No. 90, collected near Hakodate, June 20, 1884, and determined by him to be a female. The only difference is, that the throat is slightly suffused with the tawny of the breast, *but there is no trace of dusky or dark brownish on chin, throat, or jugulum*. Nor have I found it otherwise in any of the eastern specimens before me designated as females. On the other hand, the only European female *P. rubicola* before me (U. S. Nat. Mus., No. 18751) has the chin, throat, and upper jugulum brownish black with narrow pale margins to the feathers. Naumann, moreover, on plate xc (Naturg. Vög. Deutschl., III), and Dresser, on plate xl (Birds of Eur., II), likewise figure the adult females as having the parts named more or less blackish brown, and so describe them. In Yarrell's "British Birds" (4th ed., Newton, I, p. 343) the adult female is described as having the "chin buff, throat blackish." These descriptions and figures refer to the breeding plumage, for after the autumnal molt the light margins to the feathers of the throat are so broad as to totally or nearly totally conceal the blackish base; and females in this plumage (November) are described by Macgillivray (Hist. Brit. Birds, II, p. 281) as having the throat "light grayish brown." The blackish on the throat, therefore, only appears in spring, when the margins become worn towards the breeding season. But it will be observed that the females of *P. maura*, which I have referred to, are in the most possibly abraded plumage, their throat feathers being light colored down to the plumbeous bases.

And as with the adult females, so with the young males. Several specimens so marked by the collectors (U. S. Nat. Mus., No. 86123; and Jouy's Corean examples) have the throat uniform buffy in the first autumnal plumage, with no black at the base, and Henson's No. 782, collected in June, and in a wretchedly worn plumage, has the throat quite as whitish as the females quoted above, being in every respect a counterpart of them. The young *P. rubicola*, on the contrary, appears to assume at once a plumage which is but slightly different from the old males (Naumann, *tom. cit.*, p. 888), with the throat more or less blackish.

Measurements.

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Total length.
120361	Henson, 89	♂ ad	Hakodate, Yezo	June 20, 1884	64*	46*	10	22	18	....
120362	Henson, 194	♂ ad	do	Aug. 30, 1886	68	52	10	22	18	....
120363	Henson, 193	♂ ad	do	Aug. 30, 1886	(†)	(†)	10	21	19	....
120364	Henson, 125	♂ jun	do	Aug. 23, 1885	67	49	10	22	20	....
120365	Henson, 762	♂ horn	do	June 3, 1885	64*	48*	11	22	19.5	....
96275	Blak., 3209	♂ ad	Sapporo, Yezo	Oct. 23, 1882	68	49	10	21	.....	132
88636	Jouy, 312	♂ ad	Fuji, Hondo	June 27, 1882	68	51	10	22	18	....
88637	Jouy, 430	♀ ad	do	July 5, 1882	64*	48*	10	21	19	....
120366	Henson, 90	♀ ad	Hakodate, Hondo	June 20, 1884	63*	47*	10.5	21.5	18.5	....

* Very worn. † Molting.

Measurements—Continued.

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Total length.
96490	Blak., T, 51	♂ ad	Canton, China	April —	69	52	10	21.5	19	....
96491	Blak., T, 52	♂ ad	do	October —	68	53	9	.....	.....	145
86123	Jouy, 186	♂	Hongkong, China	Oct. 23, 1881	68	52	9.5	22	19	....
86153	Jouy, 216	♂ ?	do	Dec. 11, 1881	68	49	.....	21.5	18	....
86124	Jouy, 187	♀	do	Oct. 23, 1881	67	49	10	21	19.5	....
95299	Bingh., 483	♂ ad	Tenasserim	Dec. 27, 1879	63	47	10	21	18	....
95298	Bingh., 483	♂ ad	do	Jan. 14, 1880	66	48	10	22	20	140
95300	Bingham	♀ ad	do	Nov. 13, 1879	65	49	10	21.5	.....	135
114378	Jouy, 1390	♂ ad	Fusan, Corea	Apr. 20, 1884	68	48	10	21.5	19	....
114382	Jouy, 1497	♀ ad	do	Apr. 24, 1885	67	47	9.5	22	18	....
114381	Jouy, 1574	♀ ad	do	Apr. 11, 1886	66	47	9.5	21.5	19	....
	Average measurements of 14 males				67	49.5	10	21.6	18.8	....
	Average measurements of 6 females				65	48	10	21.4	18.8	....

Cyanoptila bella (Hay). (207)

Blue-and-black Flycatcher. Oruri.

1829.—*Muscicapa cyanomelana* Temminck, Pl. Color., III, livr. 79, pl. 470 (*nec M. cyanomelas* Vieill., 1818).—Temm. & Schl., Fauna Japon., Aves, p. 47 (1847).—Blakist., Ibis, 1862, p. 317.—*Hypothymis c.* Martens, Preuss. Exp. Ost-As., Zool., I, pp. 94, 368 (1866-1876).—*Cyanoptila c.* Blakist. & Pryer, Trans. As. Soc. Jap., VIII, 1880, p. 215.—*Id., ibid.*, X, 1882, p. 147.—*Xanthopygia* (*Cyanoptila*) *c.* Blakist., Chrysanth., 1882, p. 523 (scr. *Xanthrop.* err. typ.).—*Id., ibid.*, 1883, p. 29.—*Xanthopygia c.* Blakist., Chrysanth., Feb., 1883, p. —.

1845.—*Muscicapa gularis* Temminck & Schlegel, Fauna Japon., Aves, p. 43, pl. XVI (*nec* Stephens, 1824).

1845.—*Muscicapa bella* Hay, Madr. Journ. Lit. Sc., XIII, p. 158 (fide reprint in Tweeddale's Orn. Works, p. 10 (1881), where, by misprint, "p. 162").

1847.—*Cyanoptila cyanomelaenura* Blyth, Journ. As. Soc. Bengal, XVI (p. 125).—*Id.*, Ibis, 1870, p. 164.

1847.—*Muscicapa melanoleuca* Temminck & Schlegel, Fauna Japon., Aves, pl. xvii, D.

1860.—*Niltava cyanomelana* Swinhoe, Ibis, 1860, p. 58.—Seebohm, B. Jap. Emp., p. 59 (1890).—*Muscicapa c.* Whitely, Ibis, 1867, p. 199.—*Cyanoptila c.* Blakist. & Pryer, Ibis, 1878, p. 234.—Blakist, Amend. List B. Jap., p. 49 (1884).—*Xanthopygia c.* Sharpe, Cat. B. Brit. Mus., IV, p. 251 (1879).—Jouy, Proc. U. S. Nat. Mus., VI, 1883, p. 306.—Seebohm, Ibis, 1884, p. 180.

1879.—*Cyanoptila cyanothorax* "Leiden Museum" Sharpe, Cat. B. Brit. Mus., IV, p. 252.

Muscicapa cyanomelana and *M. gularis* both being untenable according to the A. O. U. Code, Canon XXXIII (p. 47), Lord Arthur Hay's (*i. e.* Lord Walden—Marquis of Tweeddale) *Muscicapa bella* seems to be the first available name for this species.

Mr. Henson's series of this species, consisting of one old male, one young male, and two adult females, is very interesting as bearing

directly upon the somewhat vexed question of the different plumages of this species.

The two females are both old birds, as they show no trace of light terminal margins to any of the upper wing-coverts, but, although shot on the same day (May 20, 1885), one (No. 1381) is considerably more ashy than the other (No. 1402). I have observed a similar difference in other specimens; the grayer birds are, perhaps, older than the more fulvous specimens. These old females are without any blue in the plumage, but an adult female in the U. S. National Museum collection (No. 109339, May 5, 1885), which is fully as ashy as Henson's No. 1381, has the feathers on the crown and forehead narrowly tipped with sky-blue, with no trace, however, of this color on rump, wings, and tail. Henson's No. 1381, moreover, shows a trace of albinism, one of the primary coverts in the right wing being nearly pure white.

The old male (Henson, No. 102) is a magnificent bird in the fullest height of plumage; the blue edgings to the wing-feathers are rich and perfect; the under wing-coverts are blue tipped with white; the sides of the breast blue, and the flanks white, heavily spotted with dusky spots washed with blue.

The young male (Henson, No. 1243) shot October 7, 1884, is perhaps the most interesting specimen of the lot. On head, interscapulars, and under parts it is very much like those of the adult female, though slightly more tawny; lower back, rump, wings, and tail, on the other hand, are much more like those of the adult male, being colored with different tints of blue, but the tips of the greater upper wing coverts are margined with pale ochraceous buff. However, a few feathers of the nestling plumage, with pale buffy spots at the tips remain on occiput and upper tail-coverts to prove that the young male molts directly from the spotted first plumage into the one with the blue lower back and rump. The greater upper wing coverts, as well as a few of the lesser ones, are margined at tip with pale ochraceous buff.

With the aid of specimens in the U. S. National Museum we are then able to trace the different change of plumages as follows:

First plumage at leaving the nest.—Feathers on head, interscapilium, and breast, with a subapical ochraceous-buffy spot followed by a terminal dusky margin. This plumage is already described by Mr. Jouy (*loc. cit.*), from whose remarks we note that the sexes are strongly marked already in this plumage, the males having the wings blue, the females brown. He does not say anything of the color of the tail in the nestling male, and we have no specimen at hand, but it is safe to assume that it is blue with white bases, as in the next plumage, since no molt of the rectrices takes place when the nestling plumage is changed. (U. S. Nat. Mus., No. 88616.)

Young males in the first autumn (*cf.* what is said above) have the upper parts of head, neck, and interscapulars nearly a pure raw umber, gradually changing into a tawny olive on the under parts, the middle portions

of which (except across the breast) are white, or whitish; scapulars, lower back, rump, outer webs of tertiaries, and edges of quills and primary coverts glaucuous to verditer blue; upper tail-coverts narrowly tipped with white and marked with a black cuneate shaft streak near the tip; tail-feathers white at base; under wing-coverts gray. (This is the plumage described by Sharpe, *tom. cit.*, p. 252, as "adult female.") U. S. Nat. Mus., No. 91379; Henson, No. 1243.

Young females in the first autumn.—No Japanese specimen being at hand, I describe this plumage from a young female collected by Blakiston at Canton, China, during November (U. S. Nat. Mus., No. 96452; Blakist., No. T, 116). Very similar to the adult female, but more brownish above, the rump being quite russet, and more tawny beneath; tips of greater upper wing coverts and shorter tertiaries margined with pale ochraceous buff. (In the rump of the specimen here described there still remains a feather of the nestling plumage, which clearly proves the age of the bird.)

This plumage is retained during the winter months, which the birds spend in the islands of the Malayan Archipelago, in spring and autumn "passing up and down the coast of China" (they being apparently absent on the Philippine Islands). Shortly before their passage northwards the color of the contour feathers is changed (whether by molt or independent of a molt I do not know), so that the young birds reach Japan in spring in a plumage but slightly different from that of the old ones. The young male before finishing the spring change appears to be described by Mr. Sharpe (*loc. cit.*) as "young male."

Young males in the first spring differ from the old males chiefly in the following points: The outer (distal) greater upper wing-coverts have still the ochraceous-buff terminal margins; the edges of quills and primary coverts are still verditer blue; under wing-coverts gray, more or less tinged with fulvous; sides of breast and flanks fulvous gray. (The birds breed in this plumage. U. S. Nat. Mus., Nos. 91813, 88614.)

Young females in the first spring are probably not very different from the old ones. I have no specimen that can safely be referred to this category, but I am much inclined to think that the more fulvous females alluded to above (Henson's No. 1402) are really the younger ones, and that the light tip margins to the greater wing-coverts disappear earlier in the females than in the males.

The breeding season over, the second autumnal molt, which includes both quills and contour feathers takes place, during which the birds assume the full plumage of the old ones, the color of which is never materially altered. The *old males* then in the second autumn and winter of their life (Henson, No. 102) differ from young spring specimens in having all the upper wing-coverts margined with hyacinth-blue to smalt-blue, the quills edged with "marine" blue; the under wing-coverts blue tipped with white, sides of breast black tinged with blue, and flanks white heavily streaked with bluish dusky.

Before leaving this theme I will call attention to the fact that in some of the males the fore neck and breast are pure black, while in others the black is more or less suffused with blue. I am inclined to think that this blue wash is due to the freshness of the plumage, and as it is found both in fall and spring specimens, it may indicate that these feathers are shed twice a year. It does not seem to be due to age.

This explanation has no bearing upon the question in regard to the curious specimen in the Leiden Museum figured in Fauna Japonica plate xvii D, lower figure, which has received the name *Cyanoptila cyanothorax*. In the latter work (p. 47) it is described as being "des teintes beaucoup moins pures. Le noir de la queue s'avance jusque vers la base de cet organe, et le noir des parties inférieures est remplacé par une teinte d'un bleuâtre sale." Blyth describes the same specimen (Ibis, 1870, p. 165) as "having the throat, breast, and ear coverts * * * of a dull whitish color, while the back is strongly tinged with verditer." This hardly represents a regular plumage, much less a distinct species, and Blyth's surmise that it is "probably a female in quasi-masculine attire" is most likely the correct explanation. The absence of black on the fore neck and of white on the tail feathers clearly indicates the female sex; that the females are apt to assume a more or less bluish plumage is illustrated by the specimen alluded to above, which has the feathers on the crown tipped with sky-blue.

Measurements.

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail feather.	Exposed culmen.	Tarsus.	Middle toe with claw.
120367	Henson, 102	♂ad	Hakodate, Yezo	Nov. 12, 1882	92	61	10	18	18
120368	Henson, 1243	♂jun	do	Oct. 7, 1884	89	58	9.5	16	16
120369	Henson 1381	♀ad	do	May 20, 1885	90	59	12	17	17
120370	Henson, 1402	♀ad	do	May 20, 1885	88	58	11	17	17
91813	Jouy, 1064	♂horn	Yokohama, Hondo	Apr. 29, 1883	90	60	11	17	.....
88614	Jouy, 453	♂horn	Fuji, Hondo	July 8, 1882	89	59	11	16	17
91379	Jouy, 638	♂jun	Chiusenji Lake, Hondo	Aug. 30, 1882	94	63	11	16	18
88615	Jouy, 364	♀ad	Fuji, Hondo	June 30, 1882	90	60	11	16	16
109339	Namiye	♀ad		May 5, 1885	87	57	11	16.5	17
88616	Jouy, 614	♀juv	Fuji, Hondo	July 28, 1882	89	59	....	....	.....

Poliomyias ferruginea (GMEL.). (210)

This is the same as Pallas's *M. luteola* and Temminck's *M. mugimaki*, as evidenced, among other things, by Pallas's own synonymy (Zoogr., I, p. 470).

Henson's collection contains not less than five specimens of this bird so rare in Japan, and throws considerable light on the question of sexual differences and seasonal changes in this species. It would have been impossible for me to gain a full and correct idea of these facts, had I not been permitted to examine an unparalleled series of thirty-five specimens collected in Corea by my friend P. L. Jouy. The conclusions

drawn from this collection are particularly valuable, as the preparation is excellent, the labeling full and exact, and the sex ascertained in every instance by dissection.

An examination of all the material before me gives some general results:

(1) The amount of white at the base of the tail-feathers is not entirely due to age, and is subject to an endless individual variation, hardly two individuals being alike. Jouy's No. 1592, Fusan, May 2, 1886, has very little white on the inner webs and scarcely any on the outer web of the outer pair, and yet it is a full-plumaged male with the whole upper surface black; and among the males with olive back there are many with the white in the inner web developed up to the maximum of black-backed ones.

(2) In Mr. Jouy's series twenty-one specimens are marked as males, some are black-backed, others olive-backed, but all *have* white at base of tail-feathers; fourteen specimens are females, all of which are olive-backed, and all *without* trace of white at base of tail feathers. The females have also the color on fore neck and breast considerably paler and duller. The great number shows that this coincidence is not due to an accident, but that we have here expressed the true sexual difference in this species, viz, *males* have white on tail, and throat rich orange-tawny; *females* have no trace of white on tail, and throat dull orange-ochraceous. Against the above series it counts very little that Henson's No. 240 is marked "♀," though having white on the outer webs of the tail feathers and a rich orange-tawny breast and throat; it is a young bird, as evidenced by the two broad light cross bands on the wings, and there is every probability of a mistake in sexing. The same remark applies to Swinhoe's description of a young bird as male, but without white on the tail (Ibis, 1862, p. 305, as *M. hylocharis!*). As far as the coloration of the tail is concerned the sexual difference in this species seems to be the same as in *Cyanoptila bella* (= *cyanomelana*).

(3) This sexual difference in the coloration of the tail holds apparently good even in the first plumage, when the bird is leaving the nest, for Von Schrenck describes and figures a young bird in this plumage (Reis. Amur-L., 1, p. 375, pl. xiii, figs. 1, 2), which has the rectrices white in basal third of outer webs, while a young bird in Mr. Henson's collection (No. 1322), labeled female, and still showing traces of the nestling plumage, has no white at all on tail.

(4) There is a considerable difference in the color of the spring and fall plumages of the adult males. After the autumnal molt they are of a bluish slate gray above, somewhat darker on the middle of the back, and the feathers more or less distinctly tipped with olivaceous. When they return in spring, however, the whole upper surface is glossy black. The young males are olive backed, and Swinhoe was consequently in error when considering this stage to represent the winter plumage of the adults.

(5) Mr. Jouy's fourteen females may be divided into two series: (*a*) those with narrow light outer edges to the tertiaries and narrow ochraceous tips to the greater upper coverts; and (*b*) those in which the light edges to the tertiaries are broader and surround the tip; which have very broad whitish tips to the greater coverts and light tips to the median coverts. The latter (*b*) I take to be birds of the year; the former (*a*) I consider adult birds.

The sequence of the different plumages would then be, according to the above:

Nestling plumage spotted; males with white at base of tail, females without; contour feathers molting in September and October.

Young after autumnal molt: Olive above; males bright orange-tawny underneath and with white on tail; females dull orange-ochraceous underneath, without white on tail, broad whitish tips, to greater upper wing coverts. Contour feathers change before the birds leave the winter quarters (Malayan peninsula and Borneo). Whether the black plumage is assumed in spring by an actual molt or by a change of color in the individual feather I can not say without specimens, but the probability is for the latter.

Adult in breeding plumage: Males black above, orange tawny beneath, white on tail; females like young females, but with greater wing-coverts but narrowly margined at tip; by abrasion the plumage of the female turns gray above and buffy beneath. At the next autumnal molt both quills and contour feathers are shed; the males assume a somewhat lighter, more bluish slate color with a wash of olive.

It will be seen that my conclusions differ considerably from those arrived at by Mr. R. B. Sharpe (Cat. B. Brit. Mus., IV, pp. 201, 202), but I can not help thinking that he has been led into error by specimens wrongly sexed by the collectors, and that in reality the bird which he describes as "*adult female*" is but a young male.

Henson's collection contains two fine adult males in black spring plumage; one in the slaty-blue fall plumage; one in olive plumage (marked female); and one young female with traces of the nestling plumage still on shoulders and upper tail-coverts.

Measurements.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
U. S. Nat., 120371	Henson, 239...	♂ad	Hakodate, Yezo....	May 20, 1885	76	54	8	17	14
U. S. Nat., 120372	Henson, 1552..	♂ad	....do.....	May 20, 1886	73	52	8.5	17	15
U. S. Nat., 120373	Henson, 1297..	♂ad	....do.....	Oct. 12, 1884	76	....	8	16	14
U. S. Nat., 120374	Henson, 240...	♀(?)	....do.....	Oct. 8, 1884	75	52	8	16	14
U. S. Nat., 120375	Henson, 1322..	♀juv	....do.....	Oct. 20, 1884	70	51	8	15	14
U. S. Nat., 91373	Jouy, 731.....	♂jun	Matsumoto, Hondo.	Oct. 29, 1882	74	52	8	15	14

Zanthopygia narcissina (Temm.). (209)

Twenty-seven specimens, the particulars of which will be found below. This series is the most interesting and most convincing one I have ever seen demonstrating the curious and still but little understood change of color in the old plumage without abrasion of the feathers or shedding of their margins, as it takes place in some birds in spring. At the meeting of the German ornithologists in Altenburg, July, 1852, Mr. Leopold Martin demonstrated the fact that the young black and white Flycatchers of Europe exchange their juvenile gray plumage for the adult black one without a molt, and without shedding the margins of the feathers (printed in Journ. f. Orn., 1853, pp. 16–19). Curiously enough, Dr. Hermann Schlegel on the same occasion laid a similar discovery before the same society (printed in Naumannia, II, ii, 1852, pp. 19–40), but unfortunately both gentlemen overestimated the frequency of the phenomenon. Schlegel tried to prove that such a change of color without a molt or marginal shedding takes place in all birds, while the feathers are only molted once a year, viz, in spring; and Mr. Martin, without committing himself positively, expressed a somewhat similar opinion. An animated discussion sprang up in the journals mentioned, in which especially Gloger, Brehm, and Gätke participated, and it was finally conceded on almost all sides that such a change of color takes place in certain birds, but that so far from it being the usual process, the change of color independent of molt or marginal shedding must be regarded as the exception. Schlegel's unwarranted generalization, however, had brought the whole theory into disrepute; the subject was soon dropped, and but few later ornithologists have paid any attention to it, in spite of the fact that it is one of the most interesting questions in ornithology. The great difficulty is in giving a satisfactory physiologic explanation of the process, which to-day is nearly as much of a mystery as it was thirty years ago. People were willing enough to admit the possibility of a change of the color, but it was found that this was accompanied by an apparent renewed growth of the feathers, a process by which the worn and broken plumes seemed to undergo a complete mending or renewal. This phase of the question is admirably illustrated in Henson's series, and I must confess that I am not prepared to accept any of the theories which have been proposed. But although unable to offer a satisfactory explanation of the phenomenon, it will not do to deny the facts, and we must leave the solution of the question to some painstaking physiologist, who shall take up the subject in a careful and empirical manner.

Of Henson's birds eight are males in full plumage, and two adult females; six are young birds after the first autumnal molt, and eleven are spring males in all possible gradations between the young and the adult plumage; one similar bird is in the U. S. National Museum, and one in Petersen's collection from Nagasaki.

It appears from this series that the yellow on the fore-neck appears before any of the other parts change color, for in all the specimens, even in those quite gray on the back and yet without yellow on the rump, the chin, throat, and chest (præpectus), are of a rich orange, paler and more gamboge behind. The yellow superciliary streak is also present in all. The change of the gray feathers to black seems to start on the forehead and the part adjoining the yellow on the fore-neck, for even in the specimens which have undergone the least change (Henson's Nos. 685 and 690) the anterior half of the crown, cheeks, and a narrow band down the sides of the neck bordering the yellow throat are black; the white spot formed by some of the upper wing-coverts has also appeared, and a few of the latter have also turned black; the upper tail-coverts are just changing to black, No. 690 being particularly interesting in showing some of the latter black at the base and russet, as in the young plumage, towards the tips; in these specimens the yellow is just making its first appearance on the rump; both have the remiges still brownish gray, as is also the tail in No. 685; but in No. 690 the tail-feathers are already pure black. It is worthy of remark that the change is not equilateral, nor does it take place regularly or on one side in preference to the other. It is also a noteworthy fact that, while in the European Black-and-White Flycatchers the change is only one from gray to black or white, the recolorescens in *Zanthopygia* also embraces the yellow of an exceedingly bright and rich tint.

No. 680 is like the foregoing ones, but black commences on the left scapulars; the rump is nearly entirely yellow, and the tail black. No. 688 similar; back clouded with black; but tail brownish gray. No. 689 is but slightly more ahead: rump intensely yellow, nearly cadmium; tail black; and the second tertiary in left wing deep black; yellow on breast in this and foregoing three specimens somewhat farther back. No. 677 is black on scapulars and interscapulars, and the tertiaries are just changing; but there is less black in the upper wing-coverts than in any of the foregoing; tail black. No. 691 similar, but blacker on hind neck and wing-coverts, and more yellow on lower breast and abdomen; longer tertiaries brownish gray; tail black. No. 684 differs only in having the tail brownish gray. No. 683 again has the tail and two shorter tertiaries black; otherwise no difference. No. 692 identical. In all the foregoing specimens, as well as in the one in the National Museum and in Petersen's collection, the occiput is still gray. They agree therefore closely with the upper figure in the plate (xvii C) in Fauna Japonica, which gives an excellent idea of these birds in the last stage of transition. It seems, therefore, as if the occiput regularly is the last part of the smaller plumage to assume the black color. No. 693 has finished the change on the body, but the remiges are still brownish gray, except the three tertiaries in the left wing and the two shorter ones in the right; the black on back and upper head, moreover, has a strong wash of olive.

Mr. Henson's specimens are from Hakodate, Yezo, and the dates on which they were collected run as follows in the order in which the specimens have been mentioned above, viz: May 20, June 17, May 17, 23, 6, 27, 18, 18, 17, 30. For comparison it is interesting to note, that Petersen's bird, which has nearly finished the change, was collected in Kiusiu April 29. The change, therefore, seems to take place during May and first half of June.

In the above specimens in which the tertiaries have become black, this color contrasts strongly with the faded brownish gray of the other remiges, and there is no indication of the latter becoming black by a gradual change. In the series of 8 specimens which I have designated as males in "full plumage" there are several in which all the remiges are intermediate blackish brown, paler towards the tip. It would therefore appear as if all the primaries and secondaries change to black simultaneously and that this change takes place very suddenly. The process seems to be the same in the tail-feathers, though I may mention, that Mr. Jouy has a changing male from Korea in which all the rectrices are black or nearly so, with the exception of the middle pair, which is still brownish.

In regard to the young males collected by Mr. Henson I have only to remark that No. 1161 has still a few feathers on the nape belonging to the first plumage, with a buffy spot and dusky margin to the tips.

Measurements.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Total length.
U. S. Nat. 120376..	Henson, 687.	♂ ad...	Hakodate, Yezo.	May 23, 1885	78	50	10	17	17	....
U. S. Nat. 120377..	Henson, 686.	♂ ad...	....do.....	May 17, 1885	76	49	10	16	16	....
U. S. Nat. 120378..	Henson, 681.	♂ ad...	....do.....	May 18, 1885	79	52	10	16.5	16.5	....
U. S. Nat. 120379..	Henson, 682.	♂ ad...	....do.....	....do.....	....	50	10	16.5	.....	....
U. S. Nat. 120380..	Henson, 676.	♂ ad...	....do.....	May 20, 1885	74	50	10	16.5	16.5	....
U. S. Nat. 120381..	Henson, 694.	♂ ad...	....do.....	May 23, 1885	76	50	10	16	16	....
U. S. Nat. 120382..	Henson, 679.	♂ ad...	....do.....	June 9, 1886	77	49	10	17	17	....
U. S. Nat. 120383..	Henson, 678.	♂ ad...	....do.....	June 6, 1885	77	50	10	17	17	....
U. S. Nat. 120384..	Henson, 690.	♂ trans.	....do.....	June 17, 1886	76	49	10	16.5	16	....
U. S. Nat. 120385..	Henson, 680.	♂ trans.	....do.....	June 8, 1886	....	52	9.5	16	16	....
U. S. Nat. 120386..	Henson, 685.	♂ trans.	....do.....	May 20, 1885	74	49	10	16.5	17	....
U. S. Nat. 120387..	Henson, 688.	♂ trans.	....do.....	May 17, 1886	76	53	10	17	17	....
U. S. Nat. 120388..	Henson, 677.	♂ trans.	....do.....	May 6, 1884	79	52	10	17.5	17	....
U. S. Nat. 120389..	Henson, 691.	♂ trans.	....do.....	May 27, 1885	75	49	10	17.5	17	....
U. S. Nat. 120390..	Henson, 683.	♂ trans.	....do.....	May 18, 1885	....	49	9.5	16	16	....
U. S. Nat. 120391..	Henson, 684.	♂ trans.	....do.....	....do.....	74	49	10	16	16	....
U. S. Nat. 120392..	Henson, 692.	♂ trans.	....do.....	May 17, 1885	75	50	9	17	16	....
U. S. Nat. 120393..	Henson, 689.	♂ trans.	....do.....	May 23, 1885	77	51	10	16.5	16.5	....
U. S. Nat. 120394..	Henson, 693.	♂ trans.	....do.....	May 30, 1885	72	49	9.5	16	15	....
Christiana N	Petersen, 54.	♂ trans.	Shimbon, Kiusiu.	Apr. 29, 1886	75	51	9.5	.....	.....	....
U. S. Nat. 26140..	Blak. 2914...	♂ trans.	Sapporo, Yezo..	June.....	75	50	10	16.5	16	....
U. S. Nat. 88621..	Jouy, 338....	♂ ad...	Fuji, Hondo ...	June 29, 1882	77	51	10	16.5	16.5	....
U. S. Nat. 88620..	Jouy, 449....	♂ ad...	....do.....	July 6, 1882	77	50	9.5	.....	.....	....
U. S. Nat. 91380..	Jouy, 719....	♂ jun..	Tate Yama, Hondo.	Oct. 26, 1882	77	50	10	17	17	....
U. S. Nat. 120395..	Henson, 1161	♂ jun..	Hakodate, Yezo.	Sept. 11, 1884	76	50	10	.....	.....	....
U. S. Nat. 120396..	Henson, 1177	♂ jun..	....do.....	Sept. 15, 1884	72	47	10	17	17	....
U. S. Nat. 120397..	Henson, 1186	♂ jun..	....do.....	Sept. 17, 1884	76	48	10	16	16	....

Measurements—Continued.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Total length.
U. S. Nat. 120398..	Henson, 1189	♂ jun..	Hakodate Yezo	Sept. 17, 1884	74	49	10	16	16	....
U. S. Nat. 120399..	Henson, 1219	♂ jun..	....do.....	Sept. 23, 1886	78	51	10	17	.....	....
U. S. Nat. 120400..	Henson, 1223	♂ jun..	....do.....	Sept. 30, 1884	76	49	9.5	16.5	16	....
U. S. Nat. 120401..	Henson, 1351	♀ ad...	....do.....	May 20, 1885	72	47	9.5	16.5	16.5	....
U. S. Nat. 120402..	Henson, 1283	♀ ad...	....do.....	May 30, 1885	75	47	9.5	17	.....	....
U. S. Nat. 96139 ..	Blak. 2284....	♀ ad...	Mori, Yezo	May 13, 1877	74	50	10	16.5	17	120
U. S. Nat. 109343..	Namiye.....	♀ ad...	Amagi, Hondo.	May 12, 1885	73	51	10	16	15.5	....
U. S. Nat. 88622 ..	Jouy, 518....	♀ ad...	Fuji, Hondo...	July 14, 1882	74	48	10	16	16	....
U. S. Nat. 88623 ..	Jouy, 625....	♀ ad...	....do.....	July 30, 1882	73	47	10	16	16	....
Average measurements of 23 males					76	50	9.8	16.6	16.4	....
Average measurements of 6 females					74	48	9.8	16.3	16.2	....

Hemichelidon griseisticta SWINH.

Henson Coll., No. 238; ♂ jun., Hakodate, Yezo; September 1, 1885; U. S. Nat. Mus., No. 120403.

This is a very interesting addition to the Japanese avifauna. It was quite natural that Mr. Henson should mistake this specimen for *H. sibirica* (GM.), when he found that it differed from the common Japanese Gray Flycatcher (*A. latirostris*). It occurred to me that the alleged occurrence of the former species in Japan might also rest on specimens belonging to *H. griseisticta*, but an examination of the skin, upon the identification of which *H. sibirica* has been introduced into the fauna of Japan (Blak., No. 2730, U. S. Nat. Mus., No. 96138; Seebohm, Ibis, 1884, p. 37) proves that it was correctly referred to this species. To which species, however, the two specimens in the Tokio Educational Museum mentioned by Messrs. Blakiston and Pryer (Trans. As. Soc. Jap., X, 1882, p. 148) belong must, of course, remain doubtful until they be carefully examined and compared.* As Henson's specimen has still a few feathers of the first plumage left, it is reasonable to suppose, that *H. griseisticta*, although rather rare, may breed in Yezo.

We have consequently three gray Flycatchers in Japan, which in general appearance are very much alike, and therefore difficult to distinguish unless close attention be paid to their essential characters. The following "key" may assist in identifying the three species.

*a*¹ First (tenth) primary, very short, much shorter than the primary coverts; second primary longer than fifth; wing more than 75 mm .....(HEMICHELIDON).

*b*¹ Inner edges of remiges (as seen from below) vinaceous-cinnamon; longer under tail-coverts brownish gray with white tips; breast and flanks clouded with drab-gray.....*H. sibirica*.

*It is even possible that they may belong to a fourth species, the *B. manillensis* of Tweeddale, which seems to have a longer and narrower bill and to be somewhat larger (see farther on).

b^2 Inner edges of remiges (as seen from below) pale drab-gray; longer under tail-coverts entirely white; breast and flanks white with well-defined longitudinal streaks of dark drab-gray ..... *H. griseisticta.*

a^2 First (tenth) primary equal to, or longer than, longest primary coverts; second primary shorter than fifth; wing less than 75mm (ALSEONAX) ... *A. latirostris.*

In proportions, size, and shape of bill my specimens of *H. griseisticta* (as well as my *H. pallens*) agree very closely with *H. sibirica*, so that it is entirely out of question to keep them in two different genera or even subgenera. In fact almost the only structural difference which I can detect is the slightly longer gonys in *H. griseisticta*. I am, therefore, considerably perplexed at seeing Mr. Sharpe referring the latter to the genus *Muscicapa*, next to *M. grisola*, while separating *M. sibirica* as the type of *Hemichelidon*. It seems therefore probable to me that his *M. griseisticta* (Sharpe, Cat. B. Brit. Mus., IV, p. 153) differs from mine, being probably Bonaparte's (or at least Tweeddale's) *Butalis manillensis*, a name which Sharpe quotes in his synonymy, but rejects on account of there being a *Muscicapa manillensis* previously employed.* Judging from Tweeddale's remarks (P. Z. S., 1877, p. 694) there occurs in the Philippine Islands a gray Flycatcher in coloration very much like *H. griseisticta*, but with a bill more like *M. grisola*. Whether Mr. Sharpe or I are wrong in the identification of Swinhoe's name, I cannot say, but I have had for guidance two Chinese examples, one collected by Mr. Swinhoe himself, in March 1861, at Amoy, and marked "*Muscicapa griseisticta*" in his own handwriting, and until the opposite be proven I shall regard this specimen as perfectly typical, and with this the Japanese bird agrees in all the essential particulars.

The measurements of the latter are as follows: Wing, 82mm; tail-feathers, 50 mm; exposed culmen, 8.5 mm; tarsus, 14 mm; middle toe, with claw, 15.5 mm.

Hirundo dasypus (BONAP.). (185)

♂ ad., Henson No. 153; Hakodate, May 16, 1884; U. S. Nat. Mus. No. 120480.

Breast pale, intermediate between "smoke-gray" and "drab-gray" (Ridgway, Nomencl. Col., pl. ii, pp. 12, 13), exactly like adult and young specimens collected by Mr. P. L. Jouy at Fuji, Hondo, July 20, 1880.

Phyllopseustes borealis (BLAS.).

Phyllopseustes borealis xanthodryas (SWINH.).

Material which has come to hand since I wrote my "Results of Ornithological Explorations in Kamtschatka, etc.," and especially the five specimens in Mr. Henson's collection, as well as the example obtained by Mr. Petersen at Nagasaki, have considerably shaken my confidence in *Phyllopseustes xanthodryas* as a good species. Three characters are

*Mr. Sharpe seems now to have adopted Bonaparte's name notwithstanding the earlier *M. manillensis* (cf. Ibis. 1888, p. 200) and from a recent examination of Philippine examples he still considers *B. manillensis* and *B. griseisticta* identical.

given as distinctive of this form, viz, (1) general large size; (2) longer first (rudimentary) primary; and (3) more vivid yellow color of the underparts. Several of the thirty-one specimens before me can be thus distinguished (for instance, U. S. Nat. Mus., No. 92557, Kamtchatka; Nos. 88624, 91374, Hondo, Japan; Jouy, No. 1445, Corea; Henson, Nos. z, *aa*, Yezo, Japan) as true *Ph. xanthodryas*, and U. S. Nat. Mus., Nos. 92551, 92554, 92556 (Bering Island), 88504, 88505 (Amoy, China) Henson, No. *x* (Hakodate, Japan), and all the Alaskan specimens* as *Ph. borealis*, but other specimens will only show one or two of these characters in all possible combinations. Thus U. S. Nat. Mus., Nos. 89158, 106607 (Bering Island), and Petersen's No. 28 (Kiusiu, Japan), are *Ph. xanthodryas* as far as the first primary is concerned, but *Ph. borealis* according to color, while the first mentioned has the size of the former and the two others are not larger than ordinary *Ph. borealis*. Henson's No. *w* (Hakodate, Japan), on the other hand, belongs to the last mentioned form by its general size and the first primary, while it is colored like *Ph. xanthodryas*. Henson's No. *y* (Hakodate) is a *Ph. xanthodryas* by its size, a *Ph. borealis* by its color, with the first primary intermediate. U. S. Nat. Mus., No. 96254 (Blakist., No. 1879; Hakodate) is also a *Ph. xanthodryas* by size, and partly by its color, but its first primary does not reach beyond the longest primary coverts. The result is that if you arrange your birds in two groups according to either one of the three diagnostic characters, the two groups will contain different specimens every time.

It cannot be denied, however, that there is a general tendency in the larger birds to have a proportionally larger first primary and a yellower tint, and it may be that this tendency would be more striking were all the specimens properly sexed. It is also somewhat significant that we

*Three additional specimens from Alaska bear out my suggestion (Res. Orn. Expl. Kamtsch., pp. 303–304) that the Alaskan colony consists of birds of smaller dimensions than those from Kamtchatka and Japan, and that their migration route does not touch these countries. I feel quite confident that the two forms are subspecifically distinct. In evidence I offer the following

Measurements.

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	First primary.
106650	Townsend, 1165½.	ad.	Kowak R. Alaska	Aug. 1, 1885	60	45	9.5	8
101217	Johnson, 4	ad.	Alaska	June 19, 1884	65	48	.....	9
101216	Johnson, 12	ad.	....do	....do	62	44	10	10
45909	Pease, 178	ad.	St. Michaels, Alaska	Aug. 16, 1886	60	43	.....	9
75416	Nelson, 438	ad.	....do	Aug. 24, 1877	60	42	.....	7
75415	Nelson, 462	♂ ad.	....do	Aug. 31, 1877	65	46	.....	9
Average dimensions of 6 specimens					62	45	.....	8.7

find none of the *Ph. xanthodryas* style in the Alaskan series. It is, furthermore, clear from the dates of the different birds, that season has nothing to do with the intensity of the yellow color. I am therefore not prepared to give up *Ph. xanthodryas* entirely, but as intermediate specimens undeniably occur, I shall, at least provisionally, adopt the course already indicated by me on a former occasion (Res. Orn. Expl. Kamtsch., p. 306) calling the yellow bird *Ph. borealis xanthodryas*, in spite of the fact that it is difficult at present to assign a definite habitat to the two forms, as both seem to occur in the same countries.* It is possible, however, that *Ph. xanthodryas* is the breeding bird of Japan, and that *Ph. borealis* only occurs there on the migrations; this is a question for the resident ornithologists there to investigate and solve.

The Japanese specimens of the two forms, as I have provisionally separated them, measure as follows:

Phyllopseustes borealis.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	First primary.	Tarsus.	Middle toe with claw.
U. S. Nat. 96255..	Blakist., 2972 .	ad.	Tomakomai, Yezo .	Sept. 16, 1882	68	47	10	11	19.5	15
Christiania, N ...	Petersen, 28 ..	♂ ad.	Urakami, Kiusire .	Feb. 15, 1886	64	46	10	13.5	20	15
U. S. Nat. 120409.	Henson, *w*....	ad.	Hakodate, Yezo ...	.....	64	48	10	11	18.5	14
U. S. Nat. 120410.	Henson, *x*	ad.	.....do	.....	66	48	10	10	20	14
U. S. Nat. 120411.	Henson, *y*	ad.	.....do	.....	72	51	10	11.5	20	14

Phyllopseustes borealis xanthodryas.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	First primary.	Tarsus.	Middle toe with claw.
U. S. Nat. 88624..	Jouy, 537	♂ ad.	Fuji, Hondo	July 20, 1882	71	52	10	15	21	15
U. S. Nat. 91374..	Jouy, 682	♂ ad.	Chiusenji Lake, Hondo.	Oct. 3, 1882	65	47	11	12	20	15
U. S. Nat. 96254..	Blakist., 1879.	♂ ad.	Hakodate, Yezo ...	Oct. 3, 1875	73	51	11	11	21	....
U. S. Nat. 120412.	Henson, *z*.....	ad.	.....do	.....	70	50	11	13	21	15
U. S. Nat. 120413.	Henson, *aa* ...	ad.	.....do	.....	69	48	....	14	20	16

* Plesko (Ornith. Ross., II, ii, 1889, p. 155) has shown, however, that *Ph. xanthodryas* has only been found in Kamtchatka, the Kuriles, Japan, and Amoy, China, while all the specimens from Siberia are typical *Ph. borealis*, and I have called attention to the fact that the *Ph. xanthodryas* style is not found in Alaska. But the fact remains that *Ph. borealis* also occurs in the countries whence comes the yellow form.

Phyllopseustes tenellipes (SWINH.). (244)

So far only two specimens of this species have been taken in Japan, both at Hakodate. It is, therefore, very interesting to find in Mr. Henson's collection no less than fourteen specimens of this rare bird (U.S.Nat. Mus., Nos. 120414–120427). They were not collected by Mr. Henson himself, but by a native, and are therefore neither dated nor sexed, but "they were all netted on the hill behind Hakodate." So far as I can judge they are all in spring plumage.

The question now naturally arises: Where is the real habitat of this species? Mr. Seebohm (Cat. B. Br. Mus., V, p. 47) supposes it to breed in Japan, evidently upon the strength of Whitely's specimen having been collected in May. But if it breeds in Yezo, is it probable that it could have so entirely escaped both Capt. Blakiston and Mr. Henson? Pleske, on the other hand, asserts that *Ph. tenellipes* breeds in Sakhalin (Orn. Ross., II, pt. 2, p. 191). In view of these facts it seems probable that *Ph. tenellipes* only passes Yezo during the spring migration, and not even then regularly.

Urophlexis* **ussuriana** (SEEB.). (234)

Four specimens in autumnal plumage, from Hakodate.

I am somewhat doubtful as to the correctness of this identification. Seebohm, in 1881 (Cat. B. Brit. Mus., V, p. 143), separated a specimen collected in Ussuri from *U. squameiceps* (SWINH.) as "*Cettia ussurianus*" on account of the more olive cast of the plumage of the latter (*squameiceps* being described as "chocolate brown," by which term he probably intends to designate a more rufescent cast). Since then he has examined many Japanese specimens, and in 1890 (B. Jap. Emp., p. 74) he still maintains this distinction, referring, as he does, the Japanese birds to typical *U. squameiceps*. If we compare Swinhoe's description in Ibis, 1877, p. 205, and figure on pl. iv, Seebohm's measurements (Cat. B. Br. Mus., V, p. 143) and Oates's statement (B. Ind., I, p. 442) in regard to the graduation of the tail, with the results of our own measurements of eleven Japanese and Korean specimens, as given below, we shall soon gain the conviction that the latter differ from the Formosan and the Tenasserim birds. The average graduation of the tails of the former is 2^{mm} (maximum 3^{mm}), while Seebohm's Formosa skin has the tail graduated 6^{mm}. In other words, while the tail in *U. squameiceps* is nearly wedge-shaped, those of the Japanese and Korean birds are barely rounded. Now, Seebohm's measurements of *Cettia ussuriana* show that this bird has the tail rounded like the Japanese and Korean specimens. Leaving coloration out of consideration it would therefore seem as if we had at least two forms, one with a very rounded tail and another with the tail nearly even. As to the alleged difference in color, it may

* *Urosphena* SWINHOE is preoccupied. The above substitute is derived from *ουρα*, tail, and *φλεξίς*, the name of an unknown bird.

be observed that only one specimen of typical *U. ussuriana* has been critically compared, so far as I know. Furthermore, the Korean examples differ in no way from Japanese specimens; and finally, some specimens in my series are slightly less rufescent than others. Until it be proven that there is an appreciable difference in the coloration of the even-tailed birds I shall regard them as all entitled to the name *U. ussuriana*.

Measurements.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Graduation of tail.	Total length.
Sc. Coll. Tokyo 1374	Ota	ad.	Fuji, Hondo		52	28	11	20	16	1	....
U. S. Nat. 91456	Jouy, 490	♂ ad.	do	July 12	52	28	.....	20	17	2	....
U. S. Nat. 96243	Blak. 1555	ad.	South Yezo	September	53	....	10	.....	.....	.....	....
U. S. Nat. 120441	Henson	ad	Hakodate		.....	.....	10.5	20	.....	.....	....
U. S. Nat. 120442	Henson	ad.	do		54	....	10	19.5	16	.....	....
U. S. Nat. 120443	Henson	ad.	do		53	29	10	19	.....	2	....
U. S. Nat. 120444	Henson	ad.	do		51	28	10	19	17	2	....
U. S. Nat. 114377	Jouy, 1581.	♂ ad.	Fusan, Korea	Apr. 25, 1886	53	29	10	19	.....	2	95
U. S. Nat. 114376	Jouy, 1505.	♂ ad.	do	May 3, 1886	54	30	10.5	20	.....	1.5	....
U. S. Nat. 114374	Jouy, 1594.	♂ ad.	do	May 2, 1886	54	29	10	20	16	1.5	93
U. S. Nat. 114375	Jouy, 1595.	♀ ad.	do	May 2, 1886	53	30	10	19	16.5	3	93

1374. 1 primary much larger than primary coverts; 2 about = 9; 3 slightly shorter than 4 and 5 which are equal and longest. Tail-feathers subequal.
114376. "Iris very dark brown."

Zosterops japonica TEMM. & SCHL. (180)

♂ and ♀, Nos. 91, 92; Hakodate, March 11, 1883, and January 12, 1885. Normal both in color and size (bills 10.5mm and 11mm). U. S. Nat. Mus. Nos. 120479–80.

It is interesting to note that this delicately looking bird which belongs to a tropical family winters even in Yezo.

Parus hensoni, sp. nov.

♂ ad. Henson, No. 230; Hakodate, November 7, 1884; ♀ ad., No. 231, *ibid.*, October 12, 1884. U. S. Nat. Mus. Nos. 114093 and 120475.

Henson's collection reveals the rather surprising fact that we have at least three forms of Marsh-tits in Japan. When a short time ago I reviewed the Japanese *Paridæ* (Proc. U. S. Nat. Mus., IX, 1886, pp. 378–381) I argued simply from the supposition that there were only two forms to account for, little dreaming that a third one would turn up to complicate this complicated question still further.

The two specimens from Henson agree closely with the Hondo specimens (for which we deem it best at present to retain the name *P. borealis*) in regard to size and proportions, but differ considerably in color, having the top of the head glossy bluish black, like the other Yezo form, which is at once distinguishable by its long and strongly rounded tail. In the review above referred to, I called the latter *P. brevirostris* with a query, as I had considerable doubt as to the correctness of this identification. This doubt has grown into certainty since

I recently received a specimen from Southern Central Siberia (the habitat of typical *P. brevirostris*) which in every particular agrees with Taczanowski's original description of *P. brevirostris* (Journ. f. Orn., 1872, p. 444), but differs from the Yezo long-tailed birds as much as any two forms of this perplexing group. Both of them have long tails and glossy bluish black caps, but the former is considerably darker, especially below, and has hardly any of the whitish edges to the remiges and outer rectrices so conspicuous in the Yezo birds, and while in these the tail-feathers are regularly graduated, in the Siberian bird all the tail-feathers are nearly equal except the lateral pair, which is much shorter than the rest. There are reasons for believing that had not the name *P. japonicus*, bestowed by Mr. Seebohm upon specimens from Hondo, been preoccupied, it would have been available for the present form. As the case stands now, I shall designate it as *Parus seebohmi* (type, U. S. Nat. Mus., No. 96144), leaving to the future to determine to which other form, if any, it should be linked as a subspecies.

Though differing but slightly from other forms, there is no species or subspecies known to me, which combines the characters as I find them in Henson's two specimens. I will designate it as

Parus hensoni.

DIAGN.: Similar to typical *Parus palustris* (LIN.), but with whitish margins to the tertiaries, and two outer pair of tail-feathers externally edged with white; flanks paler; top of head glossy bluish black; tail doubly rounded, less than 57mm.

HABITAT: Yezo, Japan.

Type: U. S. Nat. Mus., No. 114093, Henson, No. 230; ♂ ad. Hakodate, November 7, 1884.

The three Japanese forms of Marsh Tits (subgenus *Pœcile*) may be distinguished as follows: (cf. "Synopsis" in Pr. U. S. Nat. Mus., IX, 1886, p. 375).*

a^1 Top of head and hind neck dull brownish black ..... *P. borealis.*
a^2 Top of head and hind neck glossy bluish black.
b^1 Tail doubly rounded, less than 57mm ..... *P. hensoni.*
b^2 Tail regularly and strongly rounded, more than 57mm ..... *P. seebohmi.*

It should always be remembered that this "key" does not apply to young specimens before their first autumnal molt, for even the glossy-capped forms have a dull brownish head in the first plumage. The molt takes place in July or August, and in *P. hensoni* and *P. seebohmi* the new feathers on the top of the head are distinctly bluish. Abra-

*I seize the opportunity to correct a lapsus in the "Synopsis" referred to. In a^2b^1, giving the characters of *Parus minor*, the last sentence should read thus: "the *inner* edge being black from the base."

sion, of course, affects the gloss somewhat, but adult birds in corresponding plumage, when compared, are not easily confounded.

Measurements.

Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Remarks.
Henson, 230	♂ ad.	Hakodate, Yezo	Nov. 7, 1884	60	54	8	15	14.5	Type.
Henson, 231	♀ ad.	do	Oct. 12, 1884	61	54	8.5	16	14	

Parus ater LIN. (215)

♂ and ♀, Hakodate, October 20, 1884; numbers 236, 237. U. S. Nat. Mus. Nos. 120473–4.

Although some additional material has accumulated since I wrote my previous article on the Japanese Coal Tit (Proc. U. S. Nat. Mus., IX, 1886, pp. 377, 378), I am unable to throw much new light on the subject.

Henson's specimens agree in every respect with those previously at hand from Japan. They have no crest; that is, they have not the feathers on top of the head any longer than European examples (for instance U. S. Nat. Mus., No. 111118, ♂ ad., Christiania, Norway, February 27, 1887, R. Collett, coll.). The tawny tint on the under parts is just a shade deeper in the Japanese birds than in continental European specimens in corresponding plumage before me, but nearly all my Japanese birds are killed in autumn, while most of those from Europe are spring birds. The upper surface is colored identically with specimens from France, Germany, Hungary, and Scandinavia. I stated before (*l. c.*) that Japanese specimens differ from European ones in the black on the hind neck entirely encircling the white nuchal spot and distinctly separating it from the gray of the back. I must confess, however, that this character hardly holds, for in the specimens recently received from Central Europe there are several in which the white is similarly encircled (for instance, U. S. Nat. Mus., Nos. 111394, 111395, 111118), while in Henson's No. 237 the white spot immmediately joins the gray of the back.

I have also remarked that Japanese specimens are smaller than those from the Continent of Europe, agreeing in size closely with *P. britannicus*. The additional material bears out this slight difference, inasmuch as in ten continental European examples the measures of the wing ranges between 59^{mm} (smallest ♀) and 65^{mm} (largest ♂), average 62.3^{mm}, those of the tail between 44^{mm} and 51^{mm}, average 47^{mm}, while six Japanese birds in a similar way vary between 55^{mm} and 59^{mm} (wing), average 58^{mm}, and between 43^{mm} and 46^{mm} (tail), average 44.5^{mm}. Six *P. britannicus* average respectively 58^{mm} and 43.3^{mm}.

Measurements.

Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
Henson, 236	♂ ad.	Hakodate, Yezo	Oct. 20, 1884	59	46	.....	16	.....
Henson, 237	♀ ad.	.....do	....do	55	43	8	16.5	14

Sitta amurensis SWINH. (222)

♂ ad., Henson, No. 170; Hakodate, October 20, 1884. U. S. Nat. Mus. No. 120478.

Wing, 76mm; tail-feathers, 39mm; exposed culmen, 16mm; tarsus, 18mm; middle toe, with claw, 21mm.

It will be remembered that I established *Sitta amurensis clara* upon some pale-flanked female birds from Yezo (Proc. U. S. Nat. Mus., IX 1886, p. 392). At the same time I remarked that "probably the males will show more of the chestnut color, but judging from analogy I think it safe to say that the amount will be perceptibly less than in the Hondo birds." This will not hold good, and the whole subspecies will have to be dropped, if the male sent by Mr. Henson represents the typical Yezo Nuthatch, for this specimen agrees in every respect with the birds from Hondo. Whether this is really the style of the form *breeding* on Yezo is another question which can not be solved until we receive additional material collected at the various seasons. Having obtained no more typical specimens from Amur I am yet ignorant whether the possible differences of the Japanese birds pointed out by me (*op. cit.*, p. 391) have any significance or not.*

Ægithalos caudatus (LIN.). (220)

Henson's two specimens fully substantiate what I have said on a previous occasion (Pr. U. S. Nat. Mus., IX., 1886, p. 386) in regard to Japanese examples as compared with typical European birds. The measurements are practically identical, and so is the coloration. The bills of the Japanese specimens are the merest trifle longer than in the others. An adult male from Amur agrees closely with the Japan birds, but the vinous of the flanks is a little more vivid, hardly to be distinguished from a Scandinavian specimen (No. 111120).

Seebohm's *Æ. macrurus* seems to me very doubtful. I have only seen a single Siberian specimen (Mus. C. Hart Merriam, Krasnoyarsk, December 31, 1881). It has a tail somewhat in excess of the maximum of *Æ. caudatus* as given in the table below, and the dusky central portion of the tertiaries is very restricted, but the specimen from Pomerania (see table) has even more white on the tertiaries than the Siberian bird.

*I may add that since writing my review of the Japanese Paridæ (*l. c.*) I have received four typical specimens of *Sitta albifrons* from Kamtchatka, thereby verifying my determination of the Kuril specimen (p. 393) as belonging to this form.

The latter measures as follows: Wing, 66mm; tail-feathers, 99mm; bill from nostrils, 4mm.

Measurements.

Museum No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Bill from nostril.	Tarsus.	Middle toe with claw.
U. S. Nat. 56550	Schlüt., 536	♂ ad.	Germany	.....	65	92	4	....	....
U. S. Nat. 95259	....do	♂ ad.	Pomerania	Apr. 10, 1876	64	82	4	....	....
U. S. Nat. 111413	Ray.....	♂ ad.	Saxony.....	Dec. 15, 1880	63	92	4	17	13
U. S. Nat. 111120	Collett	ad.	Solœr, Norway.....	Dec. 8, 1886	64	89	4	17	13
U. S. Nat. 96147	Blakist., 3205	♂ ad.	Sapporo, Yezo, Japan..	Oct. 23, 1882	61	81	4.5	17	....
U. S. Nat. 91549	Blakist., 3207	ad.	.....do.....	....do	62	85	4.5	18	13
U. S. Nat. 120476	Henson, 220	♂ ad.	Hakodate, Yezo, Japan	Nov. 3, 1884	65	91	4.7	17	13
U. S. Nat. 120477	Henson, 221	♀ ad.	.....do.....	....do.....	63	86	4.5	17	14
U. S. Nat. 111412	.....	♂ ad.	Amur, Eastern Siberia.	Mar. 9, 1882	61	88	4	17	12

Regulus * **japonensis** BLAKIST.

♂ ad., No. 171; Hakodate, October 25, 1884. U. S. Nat. Mus. No. 120469.

The name *R. japonicus* seems to have been instituted by Bonaparte in 1856 (Compt. Rend. Ac. Sc., XLII, p. 767), but being unaccompanied by even a trace of a description, or reference to a specimen, description, or plate, it is entirely inadmissible under the existing codes of zoological nomenclature. Bonaparte only says: "Outre le *R. japonicus*, si difficile à distinguer du *R. cristatus* d'Europe," and unless a prior description be found, or a later one, but antedating 1862, Blakiston's *Regulus japonensis* will stand as the first name accompanied by an indication of a distinguishing character.

The Japan Kinglet is easily separable from the European *Regulus regulus* notwithstanding the fact that it is included in the synonymy of the latter, both by Dresser (B. Eur., II, p. 453 (1874)) and Dr. Gadow (Cat. B. Br. Mus., VIII, p. 80 (1883)); Dresser, however, has apparently receded from his former position (*tom. cit.*, p. 451 (1880). The differences between the two forms mentioned have been so well pointed out by Mr. R. Ridgway (Pr. U. S. Nat. Mus., VI, 1883, p. 369), that I need not enlarge upon this subject in the present connection. I may add that their dimensions are nearly identical. As will be seen from the subjoined table of measurements I have before me specimens from all three islands. There seems to be not the slightest difference between them, neither in size, nor in coloration.

* Mr. Oates, in his Birds of India (I, p. 344), gets over the difficulty in disposing of the genus *Regulus* by making it an independent family, *Regulidæ*. He says: "These birds possess a character which suffices to separate them from all the other Passeres, viz, a stiff, small, and perfect feather over each nostril. This character is sufficiently important, in my opinion, to render it desirable to elevate the Goldcrests to the rank of a family." Mr. Oats is evidently not aware that *R. calendula* and *R. obscurus*, which most authors do not even separate generically, have the nostrils hidden by a tuft of small bristle-like feathers. The family character thus fails, but I think the genus *Corthylio* CAB. should stand.

Measurements.

Museum No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
Christiania N....	Petersen, 42 ..	♂ ad.	Amakusa, Kiusiu ..	Mar. 30, 1786	56	40	8	.....	12
U. S. Nat. 96260 ..	Ringer, 34	*♂ ad	Nagasaki, Kiusiu ..	Nov. 26, 1876	54	41	8	18	.....
U. S. Nat. 109489 .	Namiye.....	♂ ad.	Tokio, Hondo	Jan. 9, 1883	53	39	7	17	12
U. S. Nat. 91359 ..	Jouy, 680	♂ ad.	Tate Yama, Hondo .	Oct. 3, 1882	55	42	7.5	18	.....
U. S. Nat. 91360 ..	Jouy, 695	♂ ad.	.....do.....	Oct. 15, 1882	54	42	7	17	.....
U. S. Nat. 91362 ..	Jouy, 862	♂ ad.	.....do.....	Dec. 9, 1882	55	40	7.5	18	.....
U. S. Nat. 91361 ..	Jouy, 844	♀ ad.	.....do.....	Dec. 5, 1882	53	38	8	17	.....
U. S. Nat. 110486 .	Jouy	♀ ad.	Nikko, Hondo	.....	53	39	8	16	11
U. S. Nat. 96261 ..	Blak., 2560....	♂ ad.	Saporo, Yezo	Apr. 19, 1878	55	41	8	.....	.....
U. S. Nat. 120469 .	Henson, 71....	♂ ad.	Hakodate, Yezo....	Oct. 25, 1884	54	41	8	18	12
Average measurements of 8 males					54	41	7	18	12
Average measurements of 2 females					53	38	8	16.5	11

* Coll. Blakist. No. 2147.

Cinclus pallasii Temm. (247)

It is extremely doubtful whether the name here employed is the correct one, but inasmuch as it seems impossible at the present time to find out just to which form Temminck originally applied it, we may accept the name in common use, as the original description contains nothing which could seriously affect the identification. Temminck based the name upon a specimen which he received from Pallas at the time when the latter was in the Crimea. For that reason Temminck *conjectured* that the species occurred in that country. The variety which Pallas received from Baical (Zoogr. Ross.-As., I, p. 426) is usually quoted as belonging to *C. pallasii*, but Taczanowski insists (Bull. Soc. Zool. France, 1876, p. 58) that only *C. leucogaster* occurs in that locality. Pallas also states that he received specimens essentially similar from Kamtchatka and the Aleutian Islands through Billing's expedition, but the Dipper does probably not inhabit Kamtchatka, and the species occurring in the Aleutian Islands is *C. mexicanus*. I regard it as very probable that Pallas had no specimens at all of the present species.

Swinhoe's *C. marila* (Ibis, 1860, p. 187) seems to be a smaller race of the present species occurring in Formosa, and a large and more richly colored form is indicated by Mr. Sharpe (*loc. cit.*) as occurring in China.

There is a single specimen in Henson's collection, No. 245, collected at Hakodate, December 12, 1885. It is a female, and, like other specimens from Yezo, it does not differ in any way from birds collected in Hondo. U. S. Nat. Mus. No. 120466.

Hypsipetes amaurotis hensoni, subsp. nov.

Diagnosis: Differs from typical *Hypsipetes amaurotis* (Temm.) in being paler, the color of the flanks particularly so.

Habitat: Yezo, Japan, migrating south in winter to Hondo.

Type: U. S. Nat. Mus., No. 96280; Blakiston coll.

On a previous occasion (Proc. U. S. Nat. Mus., 1886, p. 642) I made the following observation:

In addition, I should remark that it may later on be expedient to recognize the individuals breeding in Yezo as a distinct race, characterized by the paleness of the flanks and the general lighter tone of the under parts, but at present, with only two specimens from that island, I refrain from naming it. I may also mention that a specimen from Tate-Yama, collected by Jouy October 28, agrees with the Yezo birds. This would not invalidate the status of the latter as a distinct race, since it may be presumed that in winter or during the migrations it may occur in Hondo, especially on the western side. Additional specimens from Yezo are therefore very desirable in order to have the question settled.

Henson's two specimens are consequently of great interest, the more so since I have before me three southern specimens in addition to those enumerated (*tom. cit.*, p. 643).

I find the differences indicated above substantiated in the five additional specimens, and have no hesitation in pronouncing the Yezo birds a good local race, which I take great pleasure in naming after Mr. Harry V. Henson, whose courteous liberality has enabled me to make the present observations.

I append the following measurements:

I.—*Hypsipetes amaurotis.*

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe, with claw.	Total length.
Christiania N....	Petersen, 22 ..	♂ ad	Urakami, Kinsiu ..	Feb. 9, 1886	120	108	22	22	....	....
U. S. Nat., 96279 ..	Ringer, 21	♂ ad	Nagasaki, Kiusiu..	Jan. 1, 1877	128	115	24	22	23	....
U. S. Nat., 111662 .	Namiye.....	♂ ad	Niishima	Apr. 22, 1887	137	126	24	23	24	280
U. S. Nat., 88664 ..	Jouy, 502	♂ ad	Fuji, Hondo	July 13, 1882	130	119	26	21	23	....
U. S. Nat., 109346 .	Namiye.....	♂ ad	Sagami, Hondo....	Nov. 15, 1884	133	120	24	22	....	....
U. S. Nat., 109347 .	Namiye.....	♀ ad	....do	Nov. 15, 1884	123	112	....	22	22	....
Tokio Educat....	Namiye.....	♀ ad	Napa, Liukiu	Mar. 8, 1886	118	108	24	22	22	265

II.—*Hypsipetes amaurotis hensoni.*

U. S. Nat., 96280 ..	Blakist., 2154..	♂ ad	Hakodate, Yezo ...	Feb. 12, 1877	136	120	....	22	23	....
U. S. Nat. 120481.	Henson, 79	♂ ad	....do	May 17, 1884	128	120	23	22	24	....
U. S. Nat. 120482.	Henson, 589 ..	♀ ad	....do	Dec. 9, 1885	130	115	23	22	24	....
U. S. Nat., 96281 ..	Blakist., 2873..	♀ ad	Mororan, Yezo	May 16, 1882	127	112	23	21	22	....
U. S. Nat., 91325 ..	Jouy, 729.....	♀ ad	Tate-Yama, Hondo.	Oct. 28, 1882	127	111	22	23	24	....

Lanius superciliosus Lath. (205)

♂ ad., No. 26, Hakodate, May 16, 1885; ♀ ad., No. 217, August 13, 1883; ♀ hornot. No. 31, May 25, 1885. U. S. Nat. Mus. Nos. 120483-5.

Identical with specimens from Hondo, except that the white frontal band of the adult male is much broader than in an adult male collected by Mr. Jouy on Fuji-yama, Hondo, July 14, 1882 (U. S. Nat. Mus., No. 88672). This specimen is also considerably more tawny on the flanks. Another adult male from Hakodate (Blakiston, No. 2023; U. S. Nat. Mus., No. 96135), collected in June, agrees with Henson's example both in regard to the width of the frontal band and the pale-

ness of the flanks. With only three specimens, however, it is impossible to say whether there is a constant difference between the northern and southern birds or not.

Sturnia violacea (BODD.). (203)

This is the same as Temminck and Schlegel's *Sturnia pyrrhogenys*, of which Henson's collection contains six specimens. Details in table below.

Already Cassin pointed out the great individual variation in the coloration of the adult males (Perry's Jap. Exp., II, p. 220). Capt. Blakiston (Chrysanth., 1882, p. 475) has further enlarged upon this subject as follows:

> I secured a good series of examples, showing the variation in the amount of brown, chestnut, or chocolate on the head and neck of the male, from its almost entire absence in the youngest—none, of course, younger than birds born last year—the colored ear coverts, and a few specks on the throat of those of medium age, to the entire side of head, lower part of throat, and slightly round the back of the neck of the most aged specimens. I also noticed that the testicles of all the male birds I opened were nearly black.

Wilh. Blasius (Zeitschr. Ges. Orn., 1886, pp. 123–124) has also some important remarks to the same effect, and the series now before me, consisting of birds collected by the Perry expedition, by Blakiston, Jouy, and Henson, fully substantiates the above statements, though I can not see upon what evidence the above gentlemen consider the birds with but little chestnut for younger individuals and those with very much for very old ones. It may be so, but there is no positive evidence.* This point could be easily settled, however, on young birds far advanced in the molt. Field ornithologists, therefore, should be on the lookout for male birds in August and September with a few feathers of the young plumage left—just sufficient to clearly prove the age—and should be particularly careful in determining the sex with absolute certainty by dissection.

I urge particular care in this instance, as there seems to be some doubt still in regard to the sexual difference in this species and its nearest allies. Mr. A. Hume (Stray Feath., VII, 1878, p. 393) says of the closely allied *Sturnia sturnina* (PALL.) (=*dauurica*) that "in the perfect adult the plumage of the two sexes is quite alike," and in regard to the present species Dr. W. Blasius (Zeitschr. ges. Ornith., III, 1886, pp. 121, 123, and 124) clearly indicates as his belief that the dull brown birds are all young, and that both males and females are essentially alike, the only difference between the sexes being,

*There is, however, one instance on record which, to a certain degree, seems to corroborate the above opinion. Dr. Blasius (*tom. cit.*, pp. 121, 122) describes a winter bird from Celebes (specimen *C*) which is evidently a male in the glossy plumage with only a few brownish feathers of the young dress left. The chestnut ear patch is mixed with white, but judging from the description it has more chestnut color than U. S. Nat. Mus. No. 96124, killed in May.

according to his opinion, the somewhat smaller size and the greater intensity of the rusty suffusion on the white portions of the plumage of the female.* Oates (B. of India, I, 1889, p. 525) also states that "in Sturnia the sexes are alike." From an inspection of the material before me I am led to believe, however, that these gentlemen are mistaken, especially Dr. Blasius (for, though it is highly probable that *sturnina* and *violacea* show no difference in this respect, it is somewhat risky to draw conclusions by analogies in such cases as this), and that Sharpe is correct when describing the two sexes as different (Cat. B. Orn. Mus., XIII, 1890, pp. 70–71).

All the specimens which, in the table below, have the sex mark indicated and not included in parenthesis are thus sexed by the collectors; and all the glossy ones are marked as males, while those which are marked ♀ are all dull brownish. This may be a coincidence, though not very likely, in view of some of the facts to be brought out below; it may also be that some of the collectors have not determined the sex by actual dissection, but then the material tends to show, at least, that the collectors (in this case ornithologists of considerable experience), who were familiar with the birds in their native haunts, regard the glossy individuals as males and the plain ones as females. Three of the brown birds marked as females were collected in May, one as late as the 29th. These differ in several essential points from the young autumnal bird in a somewhat similar plumage. Their bill is quite black, while in the young ones it is horny brown above and quite pale at base of lower mandible. The black bill I take to be an unfailing sign of maturity, and these birds I therefore regard as adult females. Their legs are also darker colored, and in regard to plumage these females differ from the young birds in having the fore neck and breast uniformly grayish white and not streaked with brownish, as in the latter. Somebody might remark that even this is not convincing, and that there is a possibility that the full adult plumage may not be assumed until the molt in the second autumn. But such a supposition is directly disproved by Henson's No. 52. This bird is unquestionably a young bird of the year, which has just commenced its first autumnal molt. The new feathers are just appearing on the lower back, and as they are of a brilliant glossy purple black they prove beyond a shadow of doubt that *the young birds molt into the fully adult plumage already in the first autumn.* It is therefore hardly possible that the brownish winter birds from Celebes which Dr. Blasius examined could be young birds of the

* In justice to Dr. Blasius it should be remarked, however, that he has expressed himself somewhat guardedly. He says (*tom. cit.*, p. 121): "Beide Bälge zeigen in der Färbung und Grösse in die Augen fallende Verschiedenheiten, die wahrscheinlich als Geschlechtsunterschied aufzufassen sein werden, da von einer Verschiedenheit nach der Jahreszeit hier füglich nicht die Rede sein kann" [as both specimens were killed on December 13]. I regard it as well established, however, that the variation in the rusty tinge is partly individual and partly seasonal, and that it has nothing to do with the sex of the bird.

year, and, in fact, the only young bird in the lot seems to be the male in full glossy plumage with but a few feathers left of the brown plumage (specimen *C; tom. cit.*, p. 120).

Henson's No. 113 is perhaps even more convincing and interesting. The former specimen (No. 52) is marked ♂, the present one ♀, and both are, beyond a doubt, young birds of exactly the same age. The female is less brown on the back, the head is grayer, and the streaks on the latter less distinct. New feathers are protruding on the back, as in the male, but these are of a dull drab, while those of the male are metallic purplish black; new whitish feathers also appear on the whole fore neck. It is then plain that the females molt into a dull plumage essentially like that which I take to be that of the adult females (see above) at the same time when the young males molt into the glossy garb of the old males.

So far we have only mentioned the change in the contour feathers of these two specimens. The molt which takes place in the wings is not less instructive, however. As in the true Starling of Europe and in *Acridotheres cinereaceus*, the young *Sturnia violacea* also molts its remiges during the first autumn of its life. If we compare the wings of the glossy old males with those of the supposed adult females mentioned above, we shall find that in the males the outer edges of the inner primaries and of the secondaries, as well as the tertiaries, primary and greater coverts are of a lustrous metallic green, while in the females the metallic gloss is quite subdued and green only on secondaries, primaries, and primary coverts, while greater coverts and tertiaries are brown with a silky shine slightly purplish and hoary in a certain light. The new wing-feathers of the two molting young birds above referred to represent this same difference. The inner primaries and the greater coverts are about half out of their sheaths in the male and are lustrous green; in the female the former and a few primary coverts are also but half out and faintly glossed with green, while the greater coverts are fully out and with a color and gloss as described above in the supposed adult females.

There is consequently strong evidence in favor of a very marked sexual difference both in the adults and in the young birds. But we should be very pleased to receive information from our friends in the field whether they are able to positively confirm or disprove our opinion.

In regard to the specific name here adopted I would remark that Pl. Enlum., No. 185, fig. 2, upon which Boddaert (1783) founded his *Motacilla violacea*, is a rather good representation of the adult male of the bird afterwards described by Wagler as *Pastor ruficollis* and by Temminck and Schlegel as *Lamprotornis pyrrhogenys*. The figure in question is rather extreme in the amount of chestnut on the sides and front of neck, and of gray across the breast, but it is closely approached by No. 96123, U. S. Nat. Mus., which also agrees with Buffon's figure in

having the entire rump glossy purplish black. The same peculiarity is observed in No. 96124, which, however, possesses the minimum of chestnut on the ears.

Measurements.

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
Tokio Educat....	Nishi	♂ ad.	Yayeyama Isl., Liukiu.	.....	107	51	15	26	26
U. S. Nat., 88693..	Jouy, 590	♂ ad.	Fuji, Hondo.....	July 24, 1882	103	50	.....	24	23
U. S. Nat., 96123..	Blakist., 2849..	♂ ad.	South Yezo	May 21, 1882	113	54	16	26	26
U. S. Nat., 96124..	Blakist., 2850 ..	♂ ad.	....do.....	....do	103	53	14	.....	.....
U. S. Nat., 96125..	Blakist., 2855 ..	♂ ad.	....do.....	May 24, 1882	107	51	15.5	26	25
U. S. Nat., 15863..	Heine, 19.....	♀ ad.	Hakodate, Yezo....	May —, 1854	109	52	14	.....	.....
U. S. Nat., 15862..	Heine, 56.....	♀ ad.	....do.....	....do	106	49	.....	.....	.....
U. S. Nat., 96126..	Blakist., 2856..	♂ ad.	South Yezo	May 24, 1882	105	48	14.5	25	25
U. S. Nat., 120491.	Henson, 23....	♂ juv	Hakodate, Yezo....	Aug. 6, 1883	101	48	14.5	26	26
U. S. Nat., 120492.	Henson, 52....	♂ juv	....do.....	Aug. 14, 1883	107	52	15	26	25
U. S. Nat , 120493.	Henson, 84....	♂ ad	....do.....	May 30, 1885	108	51	15	25	25
U. S. Nat., 120494.	Henson, 255...	♀ ad.	....do.....	May 29, 1885	105	49	14	25	24
U. S. Nat., 120495.	Henson, 113...	♀ juv	....do.....	Aug. 21, 1883	99	49	14	25	25
U. S. Nat., 120496.	Henson, 19....	juv	....do.....	Aug. 6, 1883	100	47	14.5	24	25

Acridotheres cineraceus (TEMM.). (201)

Three ♀♀. No. 111, ad., Hakodate, November 10, 1883; No. 32, ad., Hakodate, June 2, 1883; No. 176, juv., Hakodate, September 11, 1884. U. S. Nat. Mus. Nos. 12048–90.

It is strange that most authors, even those who recognize *Pastor*, *Sturnia*, *Temenuchus*, *Acridotheres*, etc., as distinct genera, or subgenera, should persist in placing the present species in the genus *Sturnus* alongside its type, the European starling, with which, in fact, it has nothing in common that is not shared also by the members of the groups mentioned above. In style of coloration it is as strikingly different from the starling as any, wearing, as it does, the plumage of a typical Hill Myna; its bill is essentially that of *Acridotheres* (though slightly longer than in the typical species), the gently curved culmen, the lateral compression, and the very pronounced notch at the tip of the upper mandible being characters which at once separate it from *Sturnus*, with its straight, flattened, and unnotched beak, while the complete feathering of the nasal groove and the comparatively narrow opening of the nostrils in the former is identical with the corresponding parts in *Acridotheres* as contrasted with the open nostrils and naked operculum of the Starling. The tail is not so rounded as in true *Acridotheres*, but this seems to be the chief difference. I am therefore not prepared to go so far as Mr. Sharpe, who separates this species generically under the name of *Spodiopsar*.

One of Mr. Henson's specimens is of particular interest, viz, No. 176, being a young female in transition from the first plumage to that of the first winter. This specimen is in full molt all over. The new feathers have already supplanted the old ones on lower back and rump; the upper lesser wing-coverts, as well as the greater ones, are also new and fully out, besides a few of the inner primary coverts. But most inter-

esting is the fact that the five inner primaries also are molting, and that the central pair of the new tail-feathers are just emerging from the sheaths, thus proving that the regular molt of the rectrices and remiges *in the first autumn* is not confined to the European Starling. Nor are these two species unique in this respect, for, as has been shown under *Sturnia violacea*, this unusual molt is quite as normal in the latter species.

I have always believed that the Old World *Sturninæ* are closely related to the American *Icterinæ*, notwithstanding the difference in the number of primaries. Mr. Ridgway and I at once set to work examining the large material in the national collection, and found that the young of the American *Icterinæ* molt their quills and tail-feathers during *the first autumnal molt* exactly as do the true starlings. Of course, the material was not sufficient to prove it in every species and genus, but we found it in all cases in the genera *Quiscalus*, *Scolecophagus*, *Agelaius*, *Sturnella*, *Molothrus*, *Dolichonyx*.

This fact seems to add evidence of great importance in support of the opinion that *Icterinæ* and *Sturninæ* are next kin.

Garrulus brandtii EVERSM. (198)

Two specimens, ♂ and ♀ ad.; Henson coll., Nos. 185, 132, Hakodate, September 18 and October 11, 1884; U. S. Nat. Mus., Nos. 120486–7.

English ornithologists assert that they can discover no difference between Japanese specimens and those from Altai, Siberia, whence came the type.

It is curious to note that many authors recognize the present form as a distinct species while treating of *G. japonicus* as a mere geographical variety of *G. glandarius*. True, the latter are quite similar in the general coloration, but the loral region, the primaries, and the tertiaries are quite differently colored without any trace of intergradation or variation. In all these points *G. brandtii* agrees with *G. glandarius*, the chief difference between them consisting in the strong wash of cinnamon-rufous, which suffuses the head in *G. brandtii*. In eastern Russia, moreover, there seems to exist a somewhat intermediate form, *G. severzowi* BOGDAN.

Pyrrhula griseiventris LAFR. (296)

Nos. 242, ♂ ad., Hakodate, November 25, 1883; No. 243, ♀ ad., Hakodate, November 20, 1884; U. S. Nat. Mus., Nos. 120497–8.

Being winter specimens, this pair does not add much towards finally settling the status of *P. rosacea*. The male is quite typical of the latter phase, being nearly identical with No. 3 of my list (U. S. Nat. Mus., 1887, p. 107), from Kiusiu.*

* Sharpe, in his Cat. B. Brit. Mus., XII, p. 832, enumerates three *P. rosacea*, two males and one female, as collected by C. McVean in "Yezo." This is evidently a mistake which is repeated in all the birds enumerated as coming from the same source. The locality in each case should be "Yedo," the former name of Tokio, and the birds consequently came from the middle island and not from Yezo.

The female is the first Yezo specimen of that sex which I have had an opportunity to examine. It differs in no way from specimens from the other two islands.

Uragus sanguinolentus (TEMM. and SCHL.). (289)

A female collected at Hakodate, November 9, 1883, and a male collected six days later are in the collection (Nos. 115 and 114; U. S. Nat. Mus., Nos. 120500 and 120499). They agree with other specimens before me in every particular.

Acanthis linaria holboellii (BREHM). (286–7)

I have stated on several occasions (Auk, 1887, pp. 33–35, and Proc. U. S. Nat. Mus., XIV, 1891, p. 487) that the only subspecies of Red-poll belonging to the Japanese fauna is the long-billed coast form, named as above.* Henson's specimen (No. 241; U. S. Nat. Mus., No. 120501), which was collected at Hakodate, March 27, 1883, belongs eminently to this form. It is a male, without red on throat and breast, measuring as follows:

Wing, 75^{mm}; bill, from nostril, 9^{mm}. All the tail-feathers are molting and still in their sheaths.

Leucosticte brunneonucha (BRANDT). (288)

A pair was collected by Henson near Hakodate in November, 1885 (Henson, Nos. 87, 88; U. S. Nat. Mus., Nos. 120501–2), agreeing in every respect with other winter birds from Yezo and from Hondo, fourteen specimens of which are now before me. A comparison of these with five from Kamtchatka, and four from Ussuri, on the mainland, show no perceptible differences.

There is no record of this species having been observed in Japan proper during the breeding season, all the specimens hitherto obtained having been collected during the winter months, if we except a single specimen ♂ (No. 1951), shot by Capt. Blakiston at Hakodate, on May 5, 1876. On the other hand, it has repeatedly been found in summer on the Kurile Islands. However, it may confidently be looked for during the breeding season along the seashore of Yezo, where there must be plenty of wild and precipitous rocks to suit the taste of these birds.

During the summer the brown on the nape wears off and this part becomes a silvery white, more or less shaded with buff. The light

*At the same time I was careful to remark that "it is reasonable to expect that both *A. linaria* and *exilipes* in winter may visit the northern island." Since that was written Mr. Sharpe, in his Cat. B, Brit. Mus., XII, p. 249, refers two specimens from "Japan" to typical *A. linaria*, with a wing 2.75 inches long, and in the synonymy he refers Blak. and Pryer's No. 287 to this form. The identification of the specimens in question is probably correct, but the quotation certainly refers to *A. holboellii*, as I have already shown. This remark refers also to Sharpe's quotation of Blak. & Pryer's 286 under *A. exilipes*.

edges to the dorsal feathers also wear off and the whole upper surface consequently looks darker than in winter, features nicely illustrated by a fine ♂, with black bill, collected in Ussuri, March 27, 1881 (U. S. Nat. Mus., No. 111358). The gray nape of this bird explains the corresponding portion of Pallas's description of the "variety β 1." from the Kurile Islands, "*vertice* nigricante; *cervice* cano-albido." The absence of rosy color, which in Pallas's bird seems to be replaced by cinnamon, is not so easily accounted for, though I have before me a specimen from Kamtchatka (U. S. Nat. Mus., No. 21126, Wm. Stimpson's coll.) which, in every respect, agrees with Pallas's description, but this bird has apparently originally been preserved in alcohol, which seems to have extracted the rosy color. The fact that the nape of *L. brunneonucha* becomes gray in summer may possibly have misled Prof. Lichtenstein to determine two birds in the Berlin Museum said to have come from the Kurile Islands as *L. griseonucha* (Nomencl. Av. Mus. Berol., 1854, p. 47), though "Kurile Islands" may be a lapsus for "Aleutian Islands." At any rate, *L. griseonucha* does not occur in the former.

Chloris kawarahiba (Temm.). (283)

Two specimens of the larger Japanese Green Finch, viz, Nos. 224 and 225, ♂ and ♀, Hakodate, November 11 and October 18, 1883 (U. S. Nat. Mus., Nos. 120506–7). For dimensions, etc., see the following species.

Chloris kawarahiba minor (Temm. and Schleg.). (284)

The Eastern Green Finches are still in a state of confusion, and though having quite a number of specimens before me I have not been able to solve *all* the questions or clear *all* the doubts. I have satisfied myself as to the correctness of a few conclusions, which differ somewhat from the opinion generally accepted.

In the first place the smaller Japanese Green Finch is not identical with the Chinese *Chloris sinica* (Lin.). They agree in size, but differ considerably in coloration. In the last-mentioned bird there is very little, if any green in the yellow that spreads over the under surface from the chest backward. On the contrary, the yellow is strongly suffused with a tawny brown. In *Ch. sinica*, furthermore, the great upper wing-coverts are brown, while in *Ch. kawarahiba minor* they are olive-green, more or less suffused with yellow; and, finally, in the Chinese bird the pale margins to the inner secondaries and the tertiaries are considerably wider than in the *smaller* Japanese form. Whether specifically or only subspecifically distinct is impossible for me to say at present, but this question is comparatively unimportant. The essential thing at the present stage is the fact that the two forms *are separable.*

Strange to say, although the smaller Japanese form is almost universally called *Ch. sinica*, and nearly all authors admit the distinctness of a smaller and a larger species in Japan proper, the two latter forms are much more difficult to separate and are much more closely allied.

In fact, I was long in doubt whether they could be separated at all, and still more so as to where to draw the line.

The two Japanese forms were originally separated by Schlegel in Fauna Japonica, the characters ascribed to them being the smaller size and the deeper and brighter colors of *Ch. kawarahiba minor*. Sharpe (Cat. B. Br. Mus., XII, pp. 26–28), who accepts Swinhoe's identification of the latter with *Ch. sinica*, gives the same characteristic of the two forms which he regards as species. Schlegel gives the following dimensions of the wing: *kawarahiba major*, 90^{mm}; *k. minor*, 77^{mm} to 81^{mm}. Sharpe's measurements are respectively: 86^{mm} to 89^{mm} and 76^{mm} to 85^{mm}, the larger dimensions being in every instance that of the male, the smaller that of the female. Whitely (Ibis, 1867, p. 202) gives also some measurements, viz, 82.5^{mm} and 89^{mm}, the latter being, however, that of a female bird only. Thus these authors allow a gap of about 10^{mm} between the males of the two forms. Capt. Blakiston, however, has already shown that there is no such gap (Chrysanth., 1882, p. 474), and a glance at the tables below shows conclusively that they run into each other as far as size expressed by length of wing is concerned.

According to the authors quoted above, the smaller size is accompanied by deeper and brighter colors. A glance at my series would convince any one that this does not hold good. My Kamtchatkan* male, one of the largest, is quite as brightly colored as any one in the whole collection.

Capt. Blakiston (*loc. cit.*) has called attention to the greater size of the bill of *Ch. kawarahiba* as a more reliable character than the length of body or wing; but even in this respect no hard and fast line can be drawn. There is a regular gradation between the heaviest and longest bills to the shortest and most slender, and it will be seen that generally the bigger bill is associated with the longest wing. Size of bill, therefore, is no more absolute character than length of wing.

An inspection of my series, however, convinces me that there is a character which, taken in conjunction with those of size, makes it possible to distinguish in most cases between the two forms, for I find that the larger birds have the secondaries and tertiaries, particularly the former, much more broadly edged with light than the smaller specimens, in which, moreover, the edges are grayer, while in the former they are nearly pure white. This character is most beautifully illustrated in the two breeding females, No. 88680, from Fiji, Hondo, and No. 92626, from Petropaulski, Kamtchatka, for although the latter is in a more abraded plumage than the former, the pure white edges to the secondaries form a very conspicuous white longitudinal bar on the folded wing; in the former there is hardly a trace of light edges.

This, fortunately, gives us a fixed basis for determining the range of the two forms. Defining, as I do, *Chloris kawarahiba* as the larger form

*The Kamtchatkan habitat of *Ch. kawarahiba* and the reference to this species in my "Results of Ornithol. Explorations in Kamtschatka, etc.," have been entirely overlooked by Sharpe (*loc. cit.*).

with the broader white edges to the secondaries, we have now ascertained that it breeds in Kamtchatka; and as the smaller form has not at all been found in that country, it is safe to assume that this peninsula is its home *par excellence*. On the other hand, it is certain that the smaller form, with the edges to the secondaries narrower and grayer, *Chloris kawarahiba minor*,* breeds in the middle island of Japan. That it also breeds in Yezo is probable from the fact that Henson's specimen No. 226 was taken at Hakodate on May 10, and seems also to be indicated by Whitely.

The larger form is migratory in Kamtchatka. It has never been taken on the mainland of Asia. Consequently, it is pretty safe to conclude that its only way of migration is to Japan in winter, where it is found numerous all through the cold season as far south as Nagasaki. It may breed in Yezo and in the mountains of northern Hondo, but we have no evidence of it, and, on the whole, I think it rather improbable.

The results of this investigation consequently indicate that there are two separable forms, *Ch. kawarahiba*, inhabiting Kamtchatka in summer, migrating south to southern Japan in winter, though occasionally wintering as far north as Hakodate, and *Ch. k. minor*, a resident of Japan, which is stationary at least in the southern provinces of that empire. *Ch. sinica* does not occur in Japan at all.

I.—*Measurements of Chloris kawarahiba.*

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
U. S. Nat., 89017..	Stejn., 1205....	♂ ad.	Between Bering I. and Kamtchatka.	June 13, 1882	88	53	12	....	.....
U. S. Nat., 92626..	Stejn., 2302 ...	(♀) ad.	Petropaulski, Kam...	July —, 1883	88	55	12	....	.....
U. S. Nat., 96360..	Blak., 1587....	♂ ad.	Hakodate, Yezo.....	Apr. —, ——	82	50	12	17	.....
U. S. Nat., 96365..	Blak., 2842....	♂ ad.	Nikap, Yezo	May —, ——	86	55	12	18	20
U. S. Nat., 91542..	Blak., 3210....	(♂)	Sapporo, Yezo	Oct. —, ——	84	54	11	....	.....
U. S. Nat., 96369..	Blak., 3202....	(♂)	....do	Oct. —, ——	85	57	11	....	.....
U. S. Nat., 96368..	Blak., 3073....	juv.	....do	Oct. —, ——	81	50	11.5	....	.....
U. S. Nat., 96366..	Blak., 2843....	♀	Nikap, Yezo.....	May —, ——	84	52	12	....	.....
U. S. Nat., 96362..	Owst., 390	(♂)	Yokohama, Hondo...	.....	83	53	12	....	.....
Christiania	Peters., 41....	♂ ad.	Tokitsu, Kiusiu.....	Mar. 29, 1886	85	52	11.5	....	.....
Christiania	Peters., 29....	♂ ad.	Urakami, Kiusiu	Feb. 15, 1886	85	55	11.5	....	.....
Christiania	Peters., 98....	♀ ad.	Nagasaki, Kiusiu....	Dec. —, 1886	84	51	12	....	.....
U. S. Nat., 120506.	Henson, 224...	♂	Hakodate, Yezo	Nov. 11, 1883	88	55	13	19	20
U. S. Nat., 120507.	Henson, 225...	♀	....do	Oct. 18, 1883	84	53	12	....	.....
Average measurements of 14 specimens					85	53	11.8	....	.....

* I should state here that the distinction between the two forms here pointed out is very well shown in the beautiful plates of these birds in Fauna Japonica (Aves, pls. xlviii and xlix), though not mentioned in the text.

II.—*Measurements of Chloris k. minor.*

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.	Remarks.
96367	Blak., 3070 ..	♂	Sapporo, Yezo ...	Oct. —, ——	81	....	11	.....	.....	Molting.
96359	Blak., 1158 ..	(♂)	Hakodate, Yezo..	Mar. —, ——	83	52	11.5	.....	.....	
96364	Blak., 1264 ..	♀ ad.	....do	May —, ——	80	52	11	.....	.....	
88680	Jouy, 506 ...	♀ ad.	Fuji, Hondo	July 13, 1883	78	53	10	.....	.....	
91489	Jouy, 938 ...	♂	Yokohama, Hondo	Jan. 10, 1883	79	49	11	16.5	.....	
85784	Jouy, 10	♂ ad.	Yokoska, Hondo..	May 10, 1881	79	51	11	.....	.....	
85785	Jouy, 12	♀ ad.	....do	May —, ——	75	49	10.5	.....	.....	
96363	Owst., 408...	(♂)	Yokohama, Hondo	.....	82	53	11	.....	.....	
96361	Ringer, 38 ..	♂	Nagasaki, Kiusiu	Dec. 17, 1876	79	50	10.5	.....	.....	
114738	Ringer, 30 ..	♂	Aso-yama, Kiusiu	Jan. —, 1887	79	51	11	.....	.....	
120504	Henson, 226..	♂	Hakodate, Yezo..	May 10, 1886	80	51	11	17.5	18	
120505	Henson, 227..	♀	....do	Oct. 22, 1884	80	50	11	.....	.....	
Average measurements of 12 specimens.....					80	51	10.9	.....	.....	

Coccothraustes coccothraustes japonica (TEMM. AND SCHL.). (292)

A pair. For particulars see "measurements" given below.

The Hawfinch is one of the few birds which do not follow the rule that the representative forms in Japan are brighter and purer colored than the corresponding forms in Europe, for in the series of twenty-four birds before me it is easy enough to pick out the European specimens from those of eastern Asia by their brighter general coloration, with the exception of one (♂, U. S. Nat. Mus., No. 102932, Vosges, France, January, 1877, Mougel coll.), which can hardly be told apart from some Japanese specimens by color alone. True, Mr. R. B. Sharpe (Cat. B. Br. Mus., XII, p. 40) gives as a distinguishing character between the two forms, that in *C. japonica* the wing coverts are "ashy whitish or pale drab at the ends instead of whitish" in the typical western form, but this character does not hold at all, as two European males, the one referred to above and No. 114695 (Talamone, Italy, April, 1880), have these light tips quite as dingy as in the average Japanese bird, while one of the latter (♂, U. S. Nat. Mus., No. 109372, Suruga, Hondo, November 21, 1884, Namiye coll.) has them purer white than any of the European examples at hand. And as with the males so with the females, some are indistinguishable by color alone, while in these also the European birds are, on the whole, somewhat brighter colored.

There is one character, however, which seems to hold when others fail, viz, the greater height and bulk of the bill of typical *C. coccothraustes*. As will be seen from the tables of measurements given below, the two forms are identical in general size,* but the bills of the European birds are considerably larger. The lower mandible is particularly strong, as shown by the measurements which are taken on the side of the mandible at the base where the feathers join the horny sheath.

* The males are slightly larger than the females. The measurements of the Japanese form given by Sharpe (*loc. cit.*) are therefore misleading.

On the whole the two forms are fairly separable, and as the eastern subspecies was originally described under a trinominal appellation, I see no reason for changing it into a binominal.

A male specimen collected by Mr. Jouy at Matsumoto, Hondo (No. 91437, November 5, 1882), is very remarkable for its unusually dark and saturated coloration. The back is a dark blackish brown, still blacker on the scapulars, while the tertials are wholly black, with a delicate green silky gloss; the longest of the upper tail-coverts are of a deep burnt umber. It looks so different from all the other specimens, eastern and western, that at first I was tempted to regard it as a special form, but I am now convinced that it is only a case of excessive individual variation.

I.—*Measurements of Coccothraustes coccothraustes japonica.*

Museum and No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Height of bill at base.	Tarsus.	Middle toe with claw.	Total length.	Height of lower mandible at base.
U. S. Nat., 109372.	Namiye.....	♂ ad.	Suruga, Hondo.	Nov. 21, '84..	100	55	19	15	....	....	....	4.8
U. S. Nat., 91568..	Jouy, 1023 ..	♂ ad.	Yokohama, Hondo.	Mar. 26, '83..	100	54	19	14	22	24	....	4.5
U. S. Nat., 91437..	Jouy, 769 ...	♂ ad.	Matsumoto, Hondo.	Nov, 5, '82..	105	52	18	15	22	23	....	4.8
U. S. Nat., 96382..	Blak., 1046..	♂ ad.	Hakodate, Yezo.	Jan. 5, '73..	103	54	19	15	22	....	7 in.	4.5
U. S. Nat., 120508 .	Henson, 222.	♂ ad.	Hakodate, Yezo.	Nov. 22, '84..	99	54	19	....	....	....	....	4.5
Christiania	Petersen, 48.	♂ ad.	Tokitsu, Kisiu.	Apr. 16, '86..	104	58	20	15	....	....	....	4.8
Do.....	Petersen, 118	(♂)ad	Kiusiu.....	.....	100	55	19	15	....	....	....	4.5
U. S. Nat., 96383..	Blak., 3148..	♂juv.	Sapporo, Yezo.	Oct. 14, '82..	99	54	17	13	22	22	180	....
U. S. Nat., 91527..	Jouy, 976 ...	♀ ad.	Yokohama, Hondo.	Mar. 1, '83..	101	51	17	14	22	24	....	4.0
U. S. Nat., 91438..	Jouy, 857 ...	♀ ad.	Tate Yama, Hondo.	Dec. 9, '82..	100	....	19	14	22	24	....	4.8
U. S. Nat., 96384..	Blak., 3199..	♀ ad.	Sapporo, Yezo.	Oct. 19, '82..	102	53	18	14	22	24	174	4.0
U. S. Nat., 120509 .	Henson, 223.	♀ ad.	Hakodate, Yezo.	Nov. 20, '84..	102	53	18	....	....	....	....	4.5
Average measurements of 7 adult males.....					102	54	19	15	....	....	....	4.6
Average measurements of 4 adult females.....					101	52	18	14	....	....	....	4.3

II.—*Measurements of Coccothraustes coccothraustes.*

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Height of bill at base.	Tarsus.	Middle toe with claws.	Height of lower mandible at base.
56657	Schlüter, 776..	♂ ad.	Germany	....	106	56	20	17	.....	.....	5.5
18597	Mus. Cop. cuh.	♂ ad.	Denmark	Feb. 24, ——	105	56	20	17	22	.....	6.0
113771	Gätke	♂ ad.	Heligoland.....	May, 1887	100	54	19	16	.....	.....	6.0
102932	Mougel	♂ ad.	Vosges, France .	Jan., 1887	103	55	20	17	.....	.....	5.8
114695	——, 2770.....	♂ ad.	Talamone, Italy.	April, 1880	105	57	21	16	.....	.....	6.0
69970	Soph. Burch ..	♀ ad.	Rostock, Germ'y	.....	100	53	19	15.5	21	22	5.0
13051	Drexler.....	♀ ad.	Germany	.....	102	53	....	15	.....	.....	5.0
17007	Drouet	♀ ad.	France ?.....	.....	102	53	19	15	21.5	22	5.0
102931	Mougel	♀ ad.	Vosges, France .	Mar., 1877	100	55	20	17	.....	.....	5.0
Average measurements of 5 adult males.....					104	56	20	16.6	.....	.....	5.9
Average measurements of 4 adult females					101	54	19.3	15.6	.....	.....	5.0